AMERICAN VETERINARY REVIEW,

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EDITORIAL NOTICE.

OUR NEW DEPARTURE.—For the more than fourteen years that the publication of the REVIEW has been entrusted to our care we have endeavored to realize the importance of the duties thus imposed, and have designedly neglected nothing calculated to make it the true representative of the American veterinary profession; and to this end have performed, to the best of our ability, the often arduous and not always pleasant duties of editor, publisher, proof corrector, mailing clerk, financial overseer, etc. Our efforts would probably have proved futile, had we not received at the hands of the profession, especially during the last two or three years, the valuable assistance that our colleagues of North America have so kindly given us, and to which the greatest part of the success of the REVIEW belongs. Thanks to them, our undertaking has so considerably developed that an entire re-arrangement of our business department became a necessity, and has been under consideration for some time. Having at length assumed definite shape, we are pleased to make the following announcement to our friends, readers and patrons:

The various positions that we have attempted to fill since the appearance of the first number of the REVIEW have been divided, and notice is hereby given, that while we have reserved for ourselves and the corps of our professional assistants the editorship of the REVIEW—and therefore look as before for all papers, communications and reports of societies from our colleagues—all matters relating to publication have

been placed in the hands of the house of Sabiston & Murray, 916 Sixth Avenue, New York City, to whom application for subscriptions, reclamations and matters of a financial nature will be referred; the advertising department remaining, as in the past, under the care of Mr. W. P. Cleary.

We hope by this new departure to better accomplish the purpose had in view when the publication of the REVIEW was undertaken, and above all to remove further cause for the well-grounded complaints that had their origin in the errors and omissions consequent upon the attempt to transact the business of the REVIEW in an office already overcrowded with other matters.

ORIGINAL ARTICLES.

KOCH'S METHOD WITH TUBERCULOSIS

AND THE EARLIER USE OF CORRESPONDING PRODUCTS IN OTHER CONTAGIOUS DISEASES.

BY JAMES LAW, F.R.C.V.S., Cornell University, Ithaca, N. Y.

(A Paper read before the New York State Veterinary Medical Society.)

This paper has been generally accepted as crediting its authors with the discovery of this principle of immunity by chemical products of the life of the germ, a principle which I had set forth so extensively in its bearing on the same disease five years before. It is true that I did not experiment with sterilized laboratory cultures, but assumed as self-evident that the diseased germs grown in a suitable medium and with a limited supply of air, would elaborate the same poisonous products.

EXPERIMENTS ON PIGS BY DRS. SALMON AND SMITH.

In the report on hog cholera issued by the Bureau of Animal Industry in 1889, Drs. Salmon and Smith record the result of injection with sterlized virus on twenty-two pigs, which at first sight is anything but reassuring as to the value of such products in protecting those animals against the disease. Of

the whole number treated with the sterilized virus, twenty died and only two resisted the disease when subsequently exposed. The following gives the results in tabular form:

Experiment.	Number of Animals.	No. of Times Injected with Sterilized Virus.	Intervals between such Injections.	Total Sterilized Virus used for each Pig.	Exposure to Infection after Last Injection with Sterilized Virus.	Mode of Exposure.	Died.	Did not sicken.	Intervals between Exposure and Death.
			Days.		Days.				Days.
1	2	2	8	18 cc.	10	Fed diseased Intestines of Pig. Put in Infected Pen.	2	.....	10–17
2	3	2	3	19 cc.	15	Put in Infected Pen.	3	.....	31, 98, 113
	2	Check cases.	.....	.....	.....	"	2	.....	14, 19
3	2	2	5	20 cc.	22	"	2	.....	29, 83
	1	2	5	20 cc.	57	"	1	.....	34
	2	2	5	20 cc.	22	"	.....	2	.....
4	2	4	2, 2, 2	33.5 cc.	8	"	2	.....	15, 19
	2	3	2, 2,	25.5 cc.	10	"	2	.....	13, 15
	2	2	2	18 cc.	8	"	2	.....	13, 15
	3	Check cases.	.....	.....	.....	"	3	.....	13, 19, 39
5	5	2	3	40 cc.	4	"	5	....	19, 19, 15, 16, 18
	1	2	3	33 cc.	4	"	1	.....	18
	1	Check cases.	.....	.....	.....	"	1	.....	18

There are some points to be noted in explanation of the terrible mortality.

First: The excess of the sterilized virus used, from 18 cc. in two doses in eight days to 40 cc. in two doses in three days. Because a pig suffering from hog cholera has a great excess of these poisons in its system it does not follow that the amount is essential to secure immunity. The single vaccine vesicle protects the average system. Further, in a disease which, like hog cholera, produces congestion and even necrotic ulceration of such vital organs as the intestines and mesenteric lymphatic glands, the ptomaines are likely to endanger lesions of the parts that may prove lasting, and the embryonic tissue in such lesions would be especially open to colonization by the microbe. We see an example of this in the predisposition to tuberculosis where there is any inflammation of the air passages. It is notorious that after passing through hog-cholera a pig rarely thrives. It is desirable, therefore, to use small doses only of this chemical poison for the pig, and to avoid, if possible, the production of lesions which would virtually predispose to the disease.

Second: In the more fatal cases the exposure to infection was made so early as to forbid the idea that the system had had time to have completely rid itself of the poisonous chemical products, and much less to have risen over their profoundly depressing effects. The intervals of four, eight and ten days respectively between the injection of large doses of the chemical poisons and exposure to infection suggests the presence of that toxic effect of the ptomaines which lays the system open to the microphyte. One hardly wonders that these subjects died in periods varying from thirteen to nineteen days thereafter. It is noticeable that the two pigs that escaped the infection, and the six that survived 29, 31, 34, 83, 98 and 113 days respectively, were those that had at once had a small amount of the sterilized virus, 19 cc. and 20 cc., and that had exposure to infection delayed longer (15, 22 and 57 days) after such injections had been made. It may be that immunity by this means is not safely attainable on a large scale, yet even this dreadful table bears testimony to the operation of the principle of protection by chemical products of the germ, however unfavorable the conditions. The energy of the disease was abated, and the acute disease was exchanged for the sub-acute and chronic form in all cases in which the sterilized lymph was moderate in amount, and the subsequent exposure to infection delayed.

Third: It is to be noted that in the case of these experimental pigs the test was a severe one. The ingestion of the diseased bowels ten days after the pigs had been injected with the prostrating ptomaines, and followed by exposure in an infected pen, was a test of extraordinary severity. Again in the other cases the reporters say that the infection in the pens was ususually intense, the experimental pigs being constantly surrounded by the sick and dying, at one time fifteen pigs dying in three weeks, and at another "pigs died almost every day" in the infected pen.

Taken all in all these experiments sustain the doctrine of protection by the ptomaines, although they do not show a large percentage of survivors.

EXPERIMENTS WITH LUNG PLAGUE OF CATTLE.

Inoculations with Sequestrum.—My next essay in this field was with lung plague, and my first experiment was made by diluting and inoculating the juice squeezed from a sequestrum from the lung of a cow which had been attacked at Orange, N. J., August 27th, 1881. The cow was killed January 30th, 1882, and January 5th I inoculated three yearlings by injecting forty drops into each lung of each animal, using a hypodermic syringe with long nozzle, which was passed through the intercostal spaces. Two of the yearlings coughed a few times, but all of them took to eating heartily. One, which may be called No. 1, was suffering from a chronic bronchial catarrh and one grain of the sequestrum was inserted into a subcutaneous pouch in front of its shoulder. As the time of inoculation all had a temperature of 103° F. For two days there was a very circumscribed crepitation in the seat of the inoculation, but on the third or fourth day this had disappeared in all alike. The temperature of No. 1 remained at 103° F.; that of Nos. 2 and 3 went down to 102° F.

All remained without further change for six weeks, and on February 16th I again inoculated each in the right lung with forty drops of the slightly diluted juice of a sequestrum taken February 15th from a New York city cow by Dr. James D. Hopkins. This cow had been sick eleven weeks before her slaughter. Seventeen days later I found the temperature of Nos. 2 and 3 had risen to 103.5° F., and this it did occasionally for eight days, but there was no other indication of illness.

March 16th I inoculated these three and another as a test case, (No. 4.), in the right lungs, with the freshly exuded lymph from the lung of a cow which had sickened March 13th and was killed March 14th. March 23d, No. 4 coughed while temperature was being taken, and this was repeated daily until the 26th, when there was slight crepitus in the right lung. Temperature 103.75° F., pulse 60, breathing quiet. Temperature on the 25th had been 103.5°, and by April 1st and 2nd had reached 105.75° F. There was slight dullness

over most of the right lung, and swelling of the right side of the chest. It ate and ruminated, but was losing flesh. (Nos. 1, 2 and 3 showed no reaction).

Necropsy of Check Case No. 4.—This subject was killed April 22d, and showed on necropsy the right side engorged from shoulder to flank with the usual straw-colored lung plague exudate, the pale yellow muscle and bands of connective tissue being pushed apart so as to give the tissues a honeycombed appearance, excepting in the central part around the seat of inoculation, where they were condensed and fibrous, like an organizing false membrane. The right pleural sac contained a considerable liquid exudate, and false membranes covered the lower portion of the pleura and pericardium. The lung was normal, the inoculating nozzle having manifestly failed to enter it. The subdorsal lymphatic glands were enlarged, gorged with blood, and showed a granular appearance.

NECROPSY OF NO. 1.

On April 13th I had already made a necropsy of No. 1, but found only the lesions of the original bronchial catarrh and two small curdy-looking masses—manifestly tubercle—in front of the left leaflet of the diaphragm and in the spleen respectively.

Inoculations with Sterilized Exudate from Recent Lung Plague.—March 22d I inoculated two yearlings (Nos. 5 and 6) in the tail with a drachm each of the exudate taken from a recent case of lung plague, and heated for some time to 180 F°. There issued a slight swelling in each in the seat of inoculation, but no general reaction. Thirteen days later, (April 4th) these were tied one on each side of the sick check case, No. 4, and kept there until the latter was slaughtered, April 22d. April 9th to 15th, the temperature of both rose to 103°, 104°, and in the case of No. 5, on the 14th and 15, to 105° and 106°, then subsided to the normal, (102°). There was no indication of any lung disease.

(*To be continued.*)

DISEASED MEAT AS FOOD FOR HUMAN CONSUMPTION.

By Dr. M. Wilson, Mendota, Illinois.

(A Paper read before the Illinois State Veterinary Medical Association).

The subject of my paper, "Diseased meat as food for human consumption," is not only a broad one, but one on which many different opinions are held, and one of which, for obvious reasons, not very much can be definitely stated. It is not my intention to take every disease and show, as regards the affected flesh, its fitness or unfitness for human food, but to confine myself to one or two of the more important specific diseases.

As science progresses more light is constantly being thrown on the origin, cause and nature of these diseases, from which deductions are constantly being made regarding their fitness for human food, and ways and means devised for their treatment or eradication. The similarity of many diseases affecting man and those affecting animals has led to investigations, which have resulted not only in proving them analagous, but in preventing their spread from one to the other by quarantining and prohibiting the use of any medium of infection, such as the milk and flesh.

The dangerous role that the meat of diseased animals plays in causing disease amongst its consumers was suspected, if not actually proved, centuries ago by the Jewish rabbis. They laid down a strict code of inspection, by especially qualified persons, of the bodies of animals permitted for consumption; the rule of this code being still observed at the present time among the orthodox sects of the Jews in many countries. In this code certain definite disorders are mentioned in great detail, some of which can, without difficulty, be identified under more modern names. The directions are so minute and clear that any one without much knowledge of anatomy or pathology, can, on examining the viscera of the animal, detect the disease.

According to that code, the body of an animal showing on inspection disease of one kind or another in the viscera is un-

clean and condemned in totality as unfit for human food. Amongst these diseases there is none more clearly described than the disease that is to-day known as *tuberculosis*.

It must certainly seem strange that what has been considered for ages as dangerous by one sect of people, should have been and should continue to be entirely indifferent to another sect of people. This is not merely a question of religious rites; the rabbis of former ages were, like their colleagues in profession, the monks, known to possess great proficiency in medicine. They were, as is well shown in their writings, learned in anatomy and pathology, and we have every reason to assume that the rules concerning disease in the bodies of animals, and the prohibition of these for consumption, must have been founded on the experience that the consumption of the flesh of such animals is fraught with danger. If there is one disease about which proof is definite and absolute that it is a disease communicable from animal to animal by inoculation and by ingestion; if there is a disease about which with precision it has been shown that it is caused by a well characterized specific organism, the tubercle bacillus—that disease is tuberculosis.

No one who has any right to have an opinion about the matter doubts that be it tuberculosis in cattle or be it tuberculosis in human beings, we are dealing with one and the same disease, due to the same cause, viz., the tubercle bacillus. It matters not whether the tubercle bacillus be taken from a scrofulous gland (which is merely tuberculosis localized in certain glands), or from a tubercle in the lung in general tuberculosis, the result of inoculation in animals is the production of general tuberculosis. Although the direct experimental proof that bovine tuberculosis is directly transmissible to the human subject by ingestion, is for obvious reasons impossible, there are a good many facts going to show that such is very probably the case.

In the first place there is the experimental fact that animals susceptible to tuberculosis contract the disease when the bacilli in whatever form are introduced into their digestive tract; again, we have cases of tubercular meningitis in

young children whose parents are by no means tubercular, and who have no hereditary taint. In some of these cases, where no hereditary taint exists and no evidence of transmission from a human source, have we not a very possible source, viz., infection through milk from tubercular cows.

Considering the number of cases of tubercular animals among dairy cows and the experimental proof that tubercles in the milk glands void bacilli in the milk, a large amount of this milk must necessarily find its way into households for human food; hence we have a very possible source for the number of tubercular cases in children, they being the chief consumers.

In many cases of tuberculosis in cattle we not only have the lungs affected, but also the liver, spleen and lymphatic glands, and even the marrow of bones has been shown to be affected; and do not all these facts conclusively prove that the tubercular virus is distributed through the body by the vascular system. No other means than the blood can distribute it to such distant localities, otherwise so independent of each other, as the lungs, external lymph glands and the marrow of bones.

This conclusion at once disposes of the assumption occasionally made that if in an animal the lungs and the thoracic glands are the only organs visibly affected, the removal of these parts is sufficient to insure the safety of the rest of the body as far as its usefulness for human consumption is concerned.

We may not be able to discover by the naked eye, nor the use of the microscope, the presence of bacilli in the connective tissue or muscle. Yet, are not all these parts supplied with blood, and at the time of killing may not the virus be coursing through the vascular system on its way to more distant localities, such as the marrow of bones destined in the natural course of things to become the seat of tubercular deposits? Thus it must seem clear that no part of an animal in which even a single organ is affected with tubercle can be held clear from the virus.

I do not think that any one who has the welfare of his

fellow creatures at heart would say that food tainted with tubercular virus was fit for human food, or at least free from danger. Of course, I do not mean to say that in every case where tuberculosed meat is eaten that tuberculosis must necessarily follow, but there are so many cases of persons in a temporary low condition which predisposes them to infectious diseases, such as typhoid fever, malaria and diphtheria, that in some of these cases the introduction of the bacillus of tuberculosis might and probably would act as an exciting cause of the disease. It is not rare to come across a single member of a family in which there is no predisposition nor hereditary taint to this disease who becomes a tubercular patient through temporary weakness from other diseases, or a slight touch of bronchitis, or anything which might or might not cause an abrasion of the mucous membranes of the lungs or bowels, but which seems to make the body a fitting habitat for the introduction and propagation of the virus of consumption.

In giving first importance to the danger accruing from the consumption of meat derived from animals affected with tuberculosis, the danger of communication to consumers of disease other than tuberculosis must not be lost sight of. Although tuberculosis, from its wide distribution among cattle, ranks among the first, there is another disease that is becoming more and more spread, and the nature and cause of which we are becoming more acquainted with—that disease is actinomycosis.

Since the discovery of its specific organism, the actinomyces or ray fungus, we are better able to discover and appreciate its wide distribution, and cases, which were formerly put down under the head of tuberculosis, are now recognized under the microscope by the presence of the ray fungus, and of course the absence of the tubercle bacillus. The fungus in this disease causes nodular growths, which have a tendency to enlarge, suppurate and break down; their occurrence being common in the tongue, by which we have enlargement of this organ, from its firm fibrous appearance being known as wooden tongue; also on the gums, other parts of mucous

membrane, in the lungs and affecting the bone, giving it a honeycombed appearance. Its presence in the lungs can be easily distinguished from that of tuberculosis by microscopic examination. This disease also affects human beings, and here it is a most serious malady on account of its prolonged and painful character, and because it generally terminates fatally. Here again it is easily recognized microscopically by the presence of its specific organism, and by this means we have the proof of its distribution among human beings.

Of course while yet but little was known of this disease we heard of very few cases of its appearance in human beings, but now every once in a while we see cases reported in medical journals and published reports. As to the nature of its communication, quoting from Dr. Fleming's work on Actinomycosis, he says: "As to the manner in which, and the channel by which, the fungus invades the tissues, there is no satisfactory evidence. It is, however, extremely probable that it enters in the form of spores, through a wound, abrasion, fissure, or even by means of the delicate mucous follicles of the membrane lining the lips, mouth, pharynx and nostrils, in fact any part of the digestive or respiratory tract."

Dr. Klein speaks of two cases of actinomycosis of the bowels in man, associated with severe suppuration from the bowels, and what is more probable than to suggest that these were caused by consumption of flesh derived from animals affected with actinomycosis. I have known of cases of this in cattle, which showed symptoms of the disease so plainly, accompanied by so much emaciation, so as to make them unfit for shipping to stock yards, being bought by men who claimed they used them for the hides and tallow. As for tallow there was not enough in them to grease a wagon, and if the hides were worth the price paid for the animal it would pay to sell hides. What then was done with them? More than likely they were slaughtered and dressed and sold for human food among the poorer classes in our mining towns. That this should be prohibited goes without saying.

Another specific disease of cattle is foot and mouth disease; one dependant on a specific microbe for its origin, and

this microbe being contained in the vesicles that form on the various parts of the body, especially on the mucous membrane of the mouth and alimentary canal, and on the finer portions of the skin of the teats and digits. It is not, as is assumed by some, merely a local eruption in the mouth and on the feet, but a general constitutional, acute, febrile disorder, in which the eruptions and constitutional disturbance show that we have here also a distribution of the virus through the system. This then should be sufficient to condemn the carcase for human food, since it has been clearly proven that infection from this disease can be carried to the human subject.

In what is known as the Dover outbreak in 1884 we have conclusive proof of the transmissibility of foot and mouth disease from cattle to human beings through the medium of the milk. The symptoms in human beings were inflammation of the throat accompanied by enlargement of the glands of the neck, *vesicular eruptions* preceding and accompanying the inflammation. In some instances the feet of those who suffered were swollen and painful, and in one case eczema occurred between the toes. The number and similiarity of the cases aroused suspicion, and on inquiries being made the disease was found over the course of one particular milkman, and in almost every case where he supplied milk there were one or more cases. This led to further investigations, and the milk used in these cases was found to have come from a dairy in which the animals were affected with foot and mouth disease.

Perhaps if investigations were made a little further than at present, we might have more light thrown on some of the difficult problems in the etiology of throat affections. Other diseases, such as anthrax and trichina spiralis in swine, need no proof, neither of their transmissibility, nor their effect when introduced into the system in an uncooked state. There are still a number of infectious diseases, such as cattle plague, pleuro pneumonia contagiosa, swine plague, puerperal septicæmia, etc., of which as yet nothing is known as to their direct transmission to the human subject, but that does not make the flesh any more wholesome.

It has been proven recently that as microbes increase in an animal body they elaborate chemical substances that, coursing through the blood and tissues, cause the symptoms of the disease. This toxic substance has been isolated and injected, and has been found to produce the same symptoms as those produced by the microbe, but in a less degree, and the intensity of these symptoms can be regulated by the amount of the substance injected, and I do not think we can say that animal tissues containing these toxic materials are entirely harmless when used for human food, although that infectious disease may not have been found to be transmissible to man.

This, gentlemen, ends my paper. Hoping it may lead to some instructive and profitable remarks, I thank you for your kind attention.

FRACTURES.

By H. Thompson, D.V.S., Paxton, Ill.

(A Paper read before the Illinois State Veterinary Medical Association).

Not knowing what other subject to present to you to-day, I have concluded to give you a report of several cases of fractures that have occurred in my experience.

They tend to show to what extent nature will repair damage with a little help from man, and also that we should not be too hasty in ordering the destruction of poor dumb brutes. Their lives are as dear to them as ours are to us, and not only that, but their too frequent destruction places us in a bad light before the public, who are only too ready to call us butchers, instead of thinking us humanitarians.

Case I. The first case was a black mare six years old, with a comminuted fracture of the os suffraginis. She had been staked out with 75 or 100 feet of rope, and about a week before I saw her, had pulled the stake up and run across the field. The rope became twisted around the fetlock and threw her, and after that when she walked the foot would swing around and the animal could not put her weight on it.

The owner, thinking it nothing but a severe sprain, turned her loose. But not improving after a week's time, I was called in and found the above condition, the leg being swollen from foot to elbow.

Not having brought slings and being twenty-two miles from home, I took two singletrees and a piece of rag-carpet and erected a set of slings, using a common buggy harness. Washed the leg with a solution of hydrarg bichlor., 1 to 1,000, packed the hollow of the heel with cotton-batting and bound the limb with strips torn from a sheet. I then took some pieces of shingles and cut them the desired width and length and splinted the parts. In seven weeks I removed the bandages and rubbed all the limbs with lin. saponis, as she appeared to be stiff, and let her out of the slings. This was in the summer; by spring she was able to go to the plow and do a full day's work.

Case II. Brown mare, transverse simple fracture of ulna caused by being kicked. This being a place impossible to bandage, I put her in slings and putting on a blanket, strapped it on in front and around the chest, back of the elbow, first washing the parts with the bichloride solution.

In six weeks called to see the animal, as the owner said she wanted to get out of the slings. Found the parts strongly united and took her out of the slings, and after a run of six months she was taken up and put in front of a sewing machine wagon and rendered valuable service. In a year's time absorption of the parts had taken place so that the injury was hardly noticeable.

Case III. A fine gray Percheron mare, weight between 1600 and 1700 lbs. Found an oblique fracture of the humerus, the shoulder and leg being much swollen. I had her put in slings with a blanket strapped over the injury, and had the parts constantly wet with hot water. In a week's time stopped the hot applications and put on a dry blanket strapped as before, and put a bandage around the whole chest and over the injury. Left her in the slings about eight weeks and she made a good recovery. This injury was caused by running against a tree and then sliding about ten feet.

Case IV. A dun-colored pony, a gelding seven years old, and a very discouraging looking case. He had a comminuted fracture of the os suffraginis, rupture of the flexor tendons and two wounds over the fetlock, but not piercing the fetlock joint. It was caused by the pony running away and kicking himself loose from the buggy. I advised the destruction of the animal, as he was not worth the trouble and care necessary to restore him to usefulness. But the owner ordered treatment, so we put the pony in slings, washed the leg thoroughly with the bichloride solution, filled the openings with iodoform, covered the leg with absorbent cotton and iodoform and bandaged from foot to hock. I then put an iron splint from the foot to the hock and covered the same with plaster bandages.

In a week's time, as pus was making its appearance, I removed the bandages, syringed the openings with the solution, and repeated the dressings and bandages. In another week removed the bandages and found evidences of pus forming at the lower part of the fetlock. This I opened freely and syringed out the parts with the bichloride solution, returning the bandages as before. Removed them the next week and as the wounds were nearly healed, dressed them as before and replaced the bandages, and did not remove them for two months. Then had the leg well rubbed with soap liniment and let the pony out of the slings, when he went down on the fetlock. Had a blacksmith cut the foot down and put on a high-heeled shoe and found considerable improvement. Had the leg rubbed daily with iodine liniment and then turned the pony out for five months, after which he was taken up and used as a family horse. Later the owner realized as much from him as from sound ponies at the same sale.

Case V. A six-months-old colt with simple oblique fracture of the tibia. It was in August, and the colt had been turned out with other colts. He was found in the evening going on three legs. The next day I saw him and found well-marked crepitations and considerable swelling. When put in slings he would throw all four feet off the

ground. So we tied his head up high, built a partition close up on each side and put a rail behind him. We then staked a board, a foot wide and one inch thick, upright between his feet and lengthwise of the body, and dug a hole one foot deep for the broken limb to hang into, as it seemed impossible to bandage it. The board kept the other foot from getting into this hole.

In two weeks everything seemed progressing favorably, and in a month we removed from the slings, the bones having united. On Christmas day, being out that way, I called and found the colt running in the pasture and showing very little swelling except just where the bones had united.

MALARIA IN HORSES.

By J. F. Pease, D.V.S., Quincy, Ill.

(A Paper read before the Illinois State Veterinary Medical Association).

After deciding to present this subject to you at this meeting, I noticed an article by Dr. Griffin, U. S. A., on this same subject, in the *Veterinary Journal.* This, I believe, is the first mention of the subject I have seen in veterinary literature.

While attending lectures at the American Veterinary College, I remember one of the professors suggesting the probability of horses contracting malarial fever, and urging those who might practice in malarial districts to be on the alert for possible cases. Coming, as the writer had, from the banks of the Mississippi River, where the miasma from the overflowed bottom-lands causes so much malaria in the human subject, attention was paid to the suggestion, but no suspicious case presented itself until July 8th, 1888.

At that time I was called to see a pony mare, belonging to a lady, who watched carefully every motion of her patient as though she had been human. From the history given of the case, it would seem that the mare had had an attack of catarrhal fever, from which she was making a slow recovery. She was in good flesh, but the coat was staring, and the appetite was very capricious. The bowels were regular enough, but the urine was highly colored. The mouth had a slightly sallow or bilious appearance.

She was put on ℥i. f. e. nux vom. daily, in three doses, before feeding. The next day she appeared to be much better, ate ravenously, and ran about in the yard. But the second day she ate nothing; the third day seemed better; the fourth day, apparently well; and so on, until the periodicity was noticed.

At my suggestion, her actions were more carefully noted from day to day, until it became evident that every third day, at about 7 A.M., she had a severe chill, followed by rise of temperature; that the following day she would have a slight chill, but would brighten up about noon and begin to eat, and that the intermediate day she would be all right.

I diagnosed malaria about the 18th of July, and wanted to begin the treatment at once, but when the time came the animal seemed better, and the owner wished to wait a little longer.

Regularly enough, however, on the morning of the 21st, the heavy chill came on, and on the evening of the 22nd, after the light chill had passed off, I gave ℥i of calomel, followed in a half hour by one pint of castor oil.

On the 23rd, the well day, beginning at noon, I had a half ounce of quinine and ℥ij of f. e. digitalis given in five doses, two hours apart. Had the satisfaction of seeing her miss the heavy chill the next morning. The same doses were repeated, and the light chill was omitted. I then put her on ℥i of cinchonidia, ℥ss. doses of nux vomica, three times daily, with the result of a complete recovery.

The outcome of the treatment seemed to confirm the diagnosis, but the form of intermission was still entirely new to me. Afterward I found a number of different forms of malaria described by Bartholow, in his "Practice of Medicine."

First, he describes the simple forms,—the *quotidian*, or every day intermitting form; the *tertian*, or every other day form; and the *quartan*, with two days free from fever.

Next he speaks of the doubled forms, where two series of intermissions obtain at the same time. Among these, the *double quartan* has a severe paroxysm one day, a light paroxysm the next day, and a day without fever. This describes our case exactly.

The second case was that of a roan gelding, used as a delivery horse. He was seen first about noon, Oct. 23d, 1889, when he was just over a chill. An examination of the chest was made, but owing to the horse being quite fat it was unsatisfactory. Diagnosis was withheld, and the owner warned against a possible case of pneumonia. Had aconite administered every hour, and saw him again at 7 P.M. Symptoms about the same, e. g.—temperature, 106.6°; pulse, 70; coughing some.

Prescribed verat. veride and quinine in small doses four times daily, with the result that the pulse steadily declined in strength and frequency, while the temperature fell to 103.5°, but gradually rose to 105° on the morning of the 25th, then receding to 104°, when an acetanilid pill brought it to 100° in a few hours. The horse then seemed perfectly normal, except for the cough; ate well and looked bright; pulse, 38. He was thinner than at first, and auscultation was more successfully performed, but gave nothing abnormal. The verat. and quinine were repeated in ʒi doses of the former, and ʒss. of the latter, four times daily.

Being called out of town I did not see the case again until noon of the 28th. Found the temperature 102.5°. The groom said the horse had had a chill two days before and still coughed some. Changed the veratrum for digitalis. The pulse kept nearly normal, but the temperature varied as follows:

October 28th, 10 P.M., 102.2°; 29th, 9 A.M., 100-6°; 9 P.M., 102.2°; 30th, 9 A.M., 101.°; 31st, 9 A.M., 102.4°; chill earlier; 9 P.M., 101.6°; November 1st, 10 P.M., 102°; 2d, 100.6° to 100.2°.

It soon became apparent that the fever was decidely intermittent in its character, and the evening visits were made late for the purpose of giving a pill of ʒij quinine each evening. Four or five such doses were administered, when the temperature finally remained at the normal point. The horse was then placed on four-grain doses of arsenious acid, twice daily, and made a good recovery. Toward the last, the intermission took the double quartan form, the same as the preceding

case, although at first no regularity of the exacerbations could be observed. The cough throughout was of a dry, choky character, with no expectoration, and gradually subsided. It was probably reflex from the liver disturbance.

The membranes were never very much affected, but became slightly jaundiced toward the end of the courses.

The following two cases, suspicious of malarial origin, were lately observed. On the 26th of last December one of two well-bred, three-years old trotting colts belonging to Mr. Martin, of Quincy, suddenly went "off his feed," and began acting very dumpish. The following day No. 2 became affected the same way, and the writer was then called in.

Found both colts very dull and stupid, heads hanging, and ears lopped, and the eyes, or one eye at a time, half closed,—a position, by the way, that Dr. Griffin describes and assigns to headache, in which opinion the writer concurs.

The temperature of No. 2 was 104.5°; that of No. 1, 101°, and the groom pronounced him brighter than on the previous day. Each colt received ʒ ij of quinine, in pill form, and was given digitalis, quinine and cinchonida four times daily. In the evening the temperature of No. 2 was down to 102.4°, and that of No. 1 had not changed. The next morning, (28th), the temperature of No. 2 was 100.4°, and remained down all day, while that of No. 1 had risen nearly to 104°, and then receded to 103.2° by evening. On account of this rise in temperature, I gave each another ʒ ij pill of quinine, this time in the evening.

The next morning, (29th), the temperature of No. 1 was down to 100.6°, and stayed down, while that of No. 2 rose to 101.2°, and then receded.

That evening they received another quinine pill, and the cinchonidia and digitalis continued, four times daily. On the seventh day they were put on three grain doses of arsenic twice daily for four days in the week, and seemed to recover completely.

In casting about for an explanation of these cases of intermittent fever, the fact presented itself that they were both deeply bedded from day to day with coarse prairie hay, cut

for that purpose in the river bottoms on the Missouri side, where the river annually overflows. The people in this district suffer extremely from malaria, and it is not unknown in human practice to have cases of malaria assignable to the housing of potted plants that have been transplanted from a miasmatic soil.

The position may be untenable, but nevertheless I believe these two cases to have been malarial in their origin, and to have been induced by the constant presence of the poisonous miasm brought in by the bottom-grass, and perhaps finding further means of development in the moisture of the voidings. Under this conviction, I had the stalls thoroughly cleaned out and fumigated with chlorine, thus including bedding that was stored away overhead, and there has been no recurrence of the trouble.

The principal symptoms which these cases have in common, are about as follows: A more or less severe rigor; followed by fever, loss of appetite, and very evident headache; disordered action of the liver, as evinced by yellowed mucous membranes; the temperature running to 105° and 106° F., and dropping rapidly to near the normal, only to return to its former height; and the absence of any definite signs of inflammatory trouble to account for the high temperature.

It might be objected to this diagnosis that these appearances are those of influenza or catarrhal fever. I would answer that influenza is a continuous fever, and thus it differs from this, as "la grippe" differs from malaria in human practice. But the therapeutic proof of its relationship to human malaria seems to me the strongest fact concerning it.

While veratrum viridi, digitalis, and acetanilid control the height of the fever to some extent, or temporarily, and regulate the pulse with a greater or less degree of certainty, nothing seems to put such a quietus on to the returning paroxysms as quinine. And it must be given in rather large doses—℥ij to ℥iv. to be effectual, or in rapidly repeated doses, so as to obtain the accumulated action of the doses. I believe a physic in almost all cases would prove beneficial in unloading the portal system and increasing the absorption of

the quinine. I am in favor of anticipating the paroxysms, by giving the doses not more than twelve hours before the rise of temperature is expected, as is done in human practice.

In representing these cases, with the diagnosis as herein made, the writer does not assume the authoritative position, but hopes, through the medium of the REVIEW, to bring out something pertinent from other observers, that discussion of this subject may find its place in veterinary literature.

PELVIC ABSCESS.

BY DR. ROBERT J. WALKER, Chicago, Ill.

(A Paper read before the Illinois State Veterinary Medical Association.)

By request of the President of this Association I herewith present to you a written account of a case treated by me.

On December 17th, 1890, at 2 P.M., a gray gelding, six years old, weighing about 1400 pounds, was brought by owner to the hospital. The horse showed signs of abdominal pain and very much bloated; pulse 56. Was informed by owner that he first noticed horse pawing and rolling in stall Saturday December 13th, at 9 P.M. The horse had not passed any fæces since the night he was first noticed sick, and no veterinary surgeon had been called to see him. He would not eat, but owner gave him drinks of oatmeal and water. He had urinated very often, small quantities at a time.

On the morning of the 17th owner noticed the horse was a little bloated and at noon he thought he was getting larger and concluded to bring him to me. I told him, after examining the horse, that I thought he was a bad case, but I would tap him at once and relieve him of the gases. Shortly after puncturing with trocar and relieving the horse of the gases formed in the large intestines, he looked very thin and was very weak. I placed him in a large box stall and gave him a stimulant.

3 P.M. Horse standing quiet; pulse 48. Gave him aloes ball. Shortly after the horse rolled a little but did not seem to be in much pain.

6 P.M. Horse standing up but was continually pressing as if desiring to pass fæces. I made examination per rectum but was surprised to find I could insert my hand only a few inches, on account of the obstruction on the right of wall of rectum. I considered obstruction to be the cœcum which had been displaced and forced into pelvic cavity. On examination I was certain that I could place my hand on point of cœcum. I tried to press obstruction forward and into normal position, but the horse pressed so much that I considered it useless to continue. So I decided to use trocar, puncturing through wall of rectum. But before I did so concluded to call in another veterinary surgeon for consultation, and I called Dr. S. S. Baker, who arrived at the hospital at 9 P.M. I explained all I could to the doctor about the case and informed him I thought of using trocar per rectum to relieve gases and reduce what I considered the displaced cœcum so that it might be possible to then press it forward, or that it might when reduced in size get into normal position. Dr. Baker examined the horse, and found pulse scarcely perceptible, and animal very weak and staggering when moved. Dr. Baker could not be induced to think that we had a presentation of cœcum, but was satisfied that the horse could not live very long, and to use trocar, as I had suggested, could not do any harm, and it might be of benefit to us at some future time. It was with difficulty that I punctured the obstruction with the trocar, as horse was pressing continually. Immediately trocar was withdrawn from canula there was a dark, fetid discharge, which filled a large stable pail three-quarters full. Without any warning, horse evacuated a large quantity of fæces and canula at same time. At the suggestion of Dr. Baker, I made examination per rectum; found obstruction much smaller, but when I attempted to press obstruction forward it seemed to cause horse to press. The animal being so weak, I concluded to let him rest for some time. 8:30 P.M. gave stimulant, with a little linseed meal and water to drink. On examination per rectum obstruction could be felt, but introduction of hand caused animal to press, so I injected into rectum half pint of raw linseed oil. 9:45 P.M. Evacua-

tion of bowels with oil. 11:30 P.M. Horse standing quiet, pulse 48.

Friday, 18th, 6 P.M. Horse had passed quantity of fæces during night, moving around box stall, had no pain, pulse 40; gave drink of linseed meal and water and a bran mash. 9 A.M. Horse got away with bran mash and getting stronger. Made examination per rectum but could not feel anything of the obstruction. 1 P.M. Fæces passed regularly and soft. 6 P.M. Fæces very soft; gave two quarts of oats and bran slightly damp and put a little hay within his reach. 10 P.M. Fæces very soft; eating hay.

Saturday, 19th, 9 A.M. Was informed that horse got away with three quarts of oats given to him at 6:30 A.M. Bowels regular, not so soft as previous night. 1 P.M. Horse moving around box stall and had three quarts of oats for noon meal. 4 P.M. Moving around stall as if in pain, lying and standing at intervals. 6 P.M. No fæces passed since 10 A.M., and horse straining as if anxious to pass fæces. Urinating very often in small quantities, and slightly bloated.

Examination per rectum found obstruction just as large as on night of 17th inst. Gave injection of hot water. I concluded to use trocar as before, but was called out, and returned at 11 P.M., and found horse still pressing and no fæces passed. Pulse 60 and horse very weak. I punctured through wall of rectum into obstruction as before, attaching rubber hose tc canula after withdrawing trocar and had fetid discharge of cream-colored matter which filled large stable pail half full. Immediately discharge stopped I had an assistant raise the abdomen, and when he did so discharge flowed until pail was nearly three-quarters full. After matter ceased to flow I injected weak solution of carbolic acid through canula. Made an examination per rectum before removing canula; could find no obstruction and canula felt as if held in position only through wall of rectum. I reached my arm into rectum as far as I could, only to find two small pellets of hard fæces. The horse was at this time very weak, pulse scarcely perceptible. I gave stimulant and injected per rectum half pint of raw linseed oil.

Sunday, 1 A.M. Horse passed fæces with clyster of oil, drank linseed oil and water, pulse 60. 7 A.M. Had three quarts of soft bran and drank water with a little linseed meal. 9 A.M. Saw horse; pulse 40, fæces regular; injected weak solution potass. permanganate per rectum. 6 30 P.M. Bowels regular; injected weak solution of potass. permanganate. Horse doing well.

Monday, 9 A.M. Pulse 40, eating hay, and fæces regular.

Tuesday, 9 A.M. Doing well, and bowels regular. 6 P.M. Owner removed horse from hospital with instructions to feed soft mashes and put handful linseed meal into all drinking water, and to report if animal's bowels were not regular.

Tuesday, February 17th. Saw animal at work. Owner informed me horse had done well ever since he had removed him from hospital, and had been at work for several days.

VETERINARY DENTISTRY.

By C. E. SAYRE, D.V.S., Professor of Dental Surgery, Chicago Veterinary College.

(A Paper read before the Illinois State Veterinary Medical Association.)

Until within the last few years no branch of veterinary science has been so much neglected as veterinary dental surgery. Recently, however, there has been a revulsion among veterinarians, and now about one-half of the cards one sees read "John Smith or Tom Jones, V.S. Dentistry a specialty."

The practice of veterinary dentistry dates back much farther than most of the profession are aware of, and I must confess that I was very much surprised on looking the matter up. The oldest work at my disposal is a translation from the French by Wm. Hope, published in 1596, and he gives the best description of the irregularities of the teeth of the horse that I found until our more recent works. I will give you a quotation from him. You will notice that the wording is very peculiar, and every disease is called a distemper. "In this distemper the grinders grow either outwards or inwards, so that when the horse feeds the points of those teeth that are

higher than the rest hurt him by pricking his flesh or tongue, and make him give over eating. This inconvenience is of no great consequence, yet it puzzles several persons when they see a horse forsake his meat without any manifest cause, and pine away when there is no apparent defect either in his eyes or his hair, and even when he is otherwise brisk and lively. You must handle his grinders, and if you feel the points of them through his lips, take a sort of upset of iron, which farriers commonly use, and setting his mouth open these points will appear, which you may break off with a googe, an instrument with which every farrier is furnished; but you must beware lest by striking heedlessly on the googe, a good tooth, or even the whole jaw, may be loosened. To prevent this inconvenience, which may easily happen, instead of using the googe, you may make the horse champ on a great file used by locksmiths, which will break off the over-grown points if they are not too big; but he must chaw the file a quarter of an hour on both sides.

"I once had a mule one of whose nether grinders grew to a prodigious length. It happened that the upper tooth directly opposite to it fell out, and that below grew up into the void space, and by degrees pierced the roof of his mouth about the thickness of one's fingers, which tormented him greatly when he drunk. I have related this example as an extraordinary case to show that when once the teeth exceed their due measure and are not daily worn by chewing, they may grow to an extraordinary length, and even cut the roof of the mouth. I saw an old horse, one of whose great teeth below was a whole finger's breadth longer than the rest of his grinders. We were obliged to cast him with a great deal of trouble before we could break it off with a googe, and his jaw was so loosened by the violence of the operation that he could not eat without much pain for fifteen days after; but at length he recovered and fed heartily, which he could not do before that monstrous tooth was broken."

This short chapter, written nearly three hundred years ago, contains all that many veterinarians of to-day know of dental surgery. From the time this work was written, I

found very little on the subject, until Percivall's able works. He only enlightens farther on caries and dentition fever, and most of his writings are taken from an essay by Prof. Gowing. Gamgee gives quite an interesting chapter on diseases of the teeth and sinuses. Later, Prof. Varnel wrote a series of interesting articles. Prof. Williams devotes several pages to diseases of the teeth. The only work devoted exclusively to veterinary dental surgery is the one written by Dr. T. D. Hinebauch.

There was very little improvement in instruments or mechanical skill in operating from the time of Wm. Hope until a few years ago, when C. D. House discovered the manner of operating in the horse's mouth without the aid of a speculum; he also invented several useful instruments. Although Mr. House was an unqualified man, he deserves the respect of the profession, for he certainly taught us a great deal about operative work. With his discovery followed many evils. He immediately started out as a professional veterinary dentist, and made a grand success; and this tempted many poorly qualified men to follow his example, who did more harm than good to the poor brutes subjected to their treatment, until the veterinary dentist came to be looked upon as a veritable charlatan. There are a few exceptions, however; men who, though non-graduates, are really expert operators, much better than many of our qualified men.

The country being flooded, as it is, by so many self-styled veterinary dentists, has accomplished one thing for which I am thankful. It started the public mind to thinking that our dumb brutes suffered with their teeth as well as ourselves. Some of you may question the assertion I have just made, but those of you who are in a country practice will agree with me; for after one of these itinerant dentists has visited your towns you have done twice as much dental work as before.

I am glad that now the profession are giving more attention to this sadly neglected branch of veterinary science, and that now the veterinary surgeons, or at least a great many of them, can do their dental work in a scientific manner without

torturing the noble animal with a speculum. We do not want veterinary dentists any more than we want veterinary oculists or veterinary gynæcologists. We want *veterinarians* in the broadest sense of the word; men educated in all branches of veterinary science. At one time I thought we needed veterinary dentists as well as human dentists, but the field of usefulness is too limited.

Many operations can be performed on the human subject that would be impracticable in veterinary practice. Filling is sometimes successful, but has to be done early, before the pulp has been irritated or exposed; and it can only be done in the incisors and first three molars. We cannot devitalize the pulp and fill the root as the human dentist can; neither can we diagnose an acute attack of pulpitis, and save the tooth. We can recognize that the horse is suffering intensely, and the jaw the suffering is in, but until the pulp has died, and caused an alveolar abscess, we can very rarely tell which tooth it is that is causing the trouble.

Comparatively few of our horses pass through life without suffering more or less with their teeth. The most common trouble is sharp edges or irregularities on the molars. Caries is also quite common. These are conditions with which you are all very familiar; but before closing this paper I wish to call your attention to a disease of horses' teeth, which, though quite common, is often overlooked. I refer to pericementitis, or inflammation of the peridental membrane. Before describing the disease I will refresh your memory by a description of the peridental membrane. The peridental membrane comprises that tissue which fills up the intervening space between the tooth and the alveolus. It is composed of loose connective tissue, the fibres stretching across from the tooth to the alveolus in different directions, forming meshes, which are quite large, and allow a large amount of serous effusion, which raises the tooth up when engorged. It has a very large blood supply, principally from the dental artery, which passes through the jaw and sends a branch to each fang of the tooth. This breaks up into several branches, some entering the apical foramen to supply the pulp, and others passing up the sides

of the fang to supply the peridental membrane, and anastamose with the arteries of the gum. It also has a large nerve supply from the fifth nerve, and is the organ of touch of the teeth.

Pericementitis occurs in two forms, acute and chronic; either of these may be local or general; local, when one or several teeth are involved, and general when all of the teeth in one or both arches are involved in the inflammation. There are a number of local causes of pericementitis, the most common of which is putrescent pulp, due to caries or fractures of the teeth; the pulp dies and decomposes. The gases escape through the apical foramen and cause pericementitis, and when it is due to this cause it is nearly always followed by an alveolar abscess. But the cause I wish particularly to draw your attention to is irregularities of the molars in the arch, setting either in or out. This allows food to collect between them, which decomposes, and causes inflammation of the gums, which extends to the peridental membrane, and usually assumes a chronic form, resulting in an exostosis on the fang of the tooth. This nearly always occurs in the lower jaw, and is usually the fifth lower molar on both sides. General pericementitis in our subjects is nearly always due to drugs which cause salivation. Osteo porosis is also a cause of general pericementitis.

SYMPTOMS.—Those common to any disease of the mouth, salivation, quidding of the food, apparent loss of appetite, but usually the horse wants to eat but cannot on account of the pain caused by mastication. On examining the mouth, if it is due to pericementitis, you will find the gum receding from the tooth, and often the tooth is loose. Frequently the disease has gone so far that pus has formed, and you have an alveolar abscess discharging around the tooth, or it may burrow through into the sinuses.

PATHOLOGY.—First, congestion of the blood vessels; this is followed by effusion of same into the membrane, which may be absorbed, and the tooth recover, or it may become organized and undergo calcification and form new cement, or it may go through all the stages of inflammation and form pus,

which will find its way to the surface in some of the ways described.

TREATMENT.—The treatment I have found successful is tr. aconite and tr. iodine aa, p. æq., applied to the gum, and the application of a blister on the side of the face over the affected fang.

Gentlemen, if this paper will bring out the discussion that the subject merits, it will accomplish the object for which it was written.

USE OF CANNABIS INDICA IN COLIC.

BY S. STEWART, M.D., D.V.M., Council Bluffs, Ia.

(A Paper read before the Nebraska Veterinary Medical Association.)

This drug is found in the shops, in the form of coarse powder, tincture, fluid extract and solid extract. It has long been used by human physicians for the relief of spasm and pain. It finds an occasional mention in veterinary literature. Finlay Dunn says little concerning it; classes it as narcotic, anodyne, and anti-spasmodic; and claims that it has no influence over normal respiration, circulation or temperature He quotes Sir Robert Christianson as stating that "he has long been convinced that for energy, certainty and convenience, Indian hemp is the next anodyne, hypnotic and anti-spasmodic to opium, and often equals it."

Doctor H. C. Wood once took a large dose of the infusion of hemp and knows from his experience that it obtunds the motor nerves as well as the sensory, and produces a peculiar disturbance of intellection, distorting both the sense of distance and duration.

Negative reports concerning the action of this drug have frequently been made because inert products have been supplied to the profession, but manufacturing pharmacists now produce more trustworthy preparations.

The fluid extract is the most reliable form of the drug and is a very convenient form to administer. Experience has taught me that the mucous membrane of the mouth is an ex-

cellent absorbing organ and more trustworthy than the stomach, and I give this drug in one or two fluid drachm doses, undiluted, by pouring it on the tongue from a small bottle or by injecting it into the mouth with a syringe. Oftentimes a single dose is sufficient; if not, it should be repeated in fifteen or twenty minutes, or more, and as often as the exigencies of the case require. I have given sufficient of the drug to produce hallucinations, yet no unpleasant after-effects were noticed. It is a safe drug to leave in the hands of attendants for administration.

I have used this drug in about fifty cases and it has not failed to do what I expected it to do, namely, relieve spasms and abdominal pain. I have discarded opium and chloral hydrate in this class of cases, and do not expect to resort to them so long as this agent serves me so faithfully. In simple spasmodic colic no other medicine is needed. There are many cases of spasmodic colic which recover without treatment, and many cases which seem to yield to any plan of treatment which would probably have recovered spontaneously if not interfered with, yet many cases do not recover even when drugs and manipulations are resorted to. When given charge of a case of spasmodic colic, the veterinarian cannot foretell the results, and seldom depends upon unaided nature to effect a cure. I give these cases cannabis indica; they recover.

In cases of acute indigestion, cannabis indica will relieve the pain, while other medicaments correct the digestive disturbance. The same thing is true in obstruction or impaction of the colon.

A fine roadster, four years old, which was running in pasture daytimes and was stabled nights, during the fall of 1890, contracted spasmodic colic one stormy night and was turned into an enclosed wagon room while a surgeon could be summoned. Upon arrival at the farmer's barn, some four miles from town, I found the colt rolling and tumbling violently; the hair and cuticle had been abraded from prominent portions of his face, giving the horse a dilapidated appearance; the paroxysms of pain recurred at short intervals.

The temperature of rectum was normal; the attack had not been preceded by diarrhœa or scouring; the abdomen was not tympanitic. Two-drachm doses of fluid extract cannabis indica were given every fifteen minutes for an hour, at which time decided relief was obtained; one-half hour later, the horse was dozing from narcosis produced by this drug. The attendant was instructed to give two-drachm doses of the drug every two hours during the remainder of the day. When the case was visited the next morning, the attendant reported that the pain had not returned but that the colt had stood very quietly and apparently had slept most of the time. Urine was passed easily and abundantly; no fæces were discharged; no food was taken. Found pulse 50, respiration 16, temperature 102°. Instructed attendant to give the drug in the same dose every four hours until further notice. On the morning of the second day, I found the temperature normal, respiration 12, pulse 44. Staling had been profuse and a small quantity of fæcal matter had been discharged; the appetite was good. Convalescence was rapid without further medication.

A 1200 pound work horse used for hauling dirt was brought to my hospital at 5 P.M.; he had eaten the noon ration as usual and shown no signs of illness until about 4 P.M. The horse gave evidence of spasmodic pain in the intestinal tract and was slightly tympanitic. Thinking this case depended upon intestinal indigestion, I gave one ounce of turpentine with one quart of linseed oil, followed by four or five two-drachm doses of cannabis indica. The last drug subdued the pain and the oils cleared away the irritating ingesta. The next morning this horse called for food and required no further medication. I have given this drug in the same manner to cows suffering colicky pains with just as gratifying results.

The details of many cases could be given if I thought they would interest you, but I refrain from so doing knowing that a trial of the drug will do more to convince you than all the cases I could describe. I would have you to understand that I do not recommend cannabis indica as a panacea for all cases

of colic, or that it is to be depended upon to the exclusion of all other medicaments; but I do say that I have found it a certain agent for the relief of pain attendant upon bowel disturbances; that it does not produce delirium and constipation like opiates; that it does not blister the mouth like chloral; that it is always ready and easy of administration and a safe drug to leave for attendants to administer.

ANTISEPTIC SURGERY.

By Dr. Roland Lord, Lincoln, Nebraska.

(A Paper read before the Nebraska Veterinary Medical Association).

It is my privilege to read a short essay before you to-day, and I must ask your indulgence, not only for the crude manner in which I have attempted to present some invaluable facts, but also, because I am unable to do full justice to the magnitude of my subject.

It is only experts who can discuss with profit the various modifications of the Listerian principles; I will give you a few facts. My subject is Antiseptic Surgery; a subject which is not only a vital one for us as advanced, and I hope, nay, I believe *advancing* veterinary surgeons, but for the whole of mankind. Medical statistics tell us that this method of surgery has been productive of as much good as chloroform and the several anæsthetics, and the annals of medical surgery are crowded with the most brilliant results achieved by this method. I cannot attempt a lengthy explanation of the principles of antiseptic surgery, and I presume it would be unnecessary, but I will give you some facts and you may deduce principles. Science will not be benefited much by what I have to say, but if it makes you think and then act, my object has been attained. Many medical authorities are opposed to the new and scientific way of treating wounds; but, gentlemen, they are of three classes; 1st, either they have never tried the method; second or having tried, did it bunglingly, and consequently failed; or third, they are of that unfortunate class of people, also too common, who know everything, and

amid that knowledge they *know* that antiseptic surgery is all bosh. How they know matters little; they know it just as well as some of our clients know, when a horse has the colic, that "there's something wrong with his water."

Perhaps to fully comprehend our modern wound treatment, one must have a knowledge of the life histories of microganisms, although a simple knowledge of the fact that microbes are like tramps, on the lookout for free board and lodging, would put anyone on their guard. When a large wound is exposed to the air the microbes rejoice, and commence enjoying a delicious lunch of plastic lymph. There is new life enough in the wound, too much, and what does Dame Nature do to get rid of these pests? She causes suppuration, but if there should be pyæmic and septicæmic spores about, they prove too much for her, and produce their destructive constitutional changes. Why has carbolic acid become so famous? We have been told time and time again that it will keep a wound clean; so will water, but not surgically clean. It is simply the power of carbolic acid as an antiseptic, in other words, it destroys the germs and allows nature to heal the wound. Bichloride of mercury has proved a better antiseptic than carbolic acid, in some hands, iodoform still better in others, and thus many disputes have arisen as to the best antiseptic. But generally it matters little what antiseptic is used, so long as sterilization is complete and the germs of disease are prevented not only from gaining admission, but prevented from increasing even if admitted. This method is not a system of applying healing salves, ointments, liniments, etc., etc.; it is simply a protection of a wound from poisonous intruders. There is no such thing as healthy pus. How can a pathological product be healthy? It is absurd. An objection is often made to the minuteness of the details in our method; it is the attention to these details which go to make up the complete whole. In making a good watch, every particular screw and jewel must be carefully and accurately placed, and the result of this care is the production of a perfect time-piece. Remember this, gentlemen, that many practitioners fail to achieve good results with antiseptic surgery,

and why? Simply because they have not done antiseptic work. The method is right, but it is not properly used. You may have the most perfect and complete rifle, and yet be unable to hit the target. I ask in all fairness, can you blame the rifle? There is an infinite variety of apparatus used in hospital work which can not be applied to our patients, and I will content myself by giving a description of the various articles and apparatus which I have used and seen used, with "perfect success." Once more, before proceeding to the description of these things, let me emphatically reiterate, that it is the mode of application of these agents, and not the agents *alone*, which ensures success.

The following articles are generally necessary: irrigator, or four-quart fountain syringe, with a long rubber tube; table, or box for knives, etc., etc., etc.; dish for catgut, instruments, needles, etc., etc., etc.; lister protective; iodoform; bottle of catgut; silk-worm gut in bottle; wash-bowl for rinsing sponges; bowl for hands; razor and brush; bottle of antiseptic tablets; carbolic acid; sponges—bichloride; gauze—bichloride; cotton—bichloride; bandages; towels; plaster of-paris bandages.

Now what have we to recognize when called upon to treat a wound? Three things; the first is injured tissue, which nature will repair to a greater or less extent; second, effused fluids, which will conduct repair; third, parasites, which live on those healing fluids. Well, first remove *all* obstacles to repair. They are mechanical, as when lint, salve, powder, dirt, straw, fragments of bone, are in contact with raw surfaces, or when loss of tissue prevents adaptation of parts; chemical, the presence and growth of microbes.

Now I will suppose you have been called upon to treat a bad barb-wire cut on the forearm, great laceration of parts and some loss of tissue. Proceed as follows: have the wound thoroughly washed by a man; procure a table or box; fill your dish with 30 per cent solution of carbolic acid, and put in some oiled-silk and catgut, two pair of scissors, (one large pair to cut dressings with, and the other for surgical purposes), a scalpel, three or four needles, needle holder, forceps, (simple

and artery); fill a pail with 1-4,000 sol. bichlor.; a basin with the same; fill the irrigator and hang in a suitable place; lay out the iodoform, catgut, etc., etc.; wring out a towel in the bichlor. solution; lay it on the table; scrub your hands and arms at the same time; cut off a suitable piece of gauze; also cotton, and along with two bandages place all on the towel, and roll up ready for use—shoot anyone who touches them. Next decide whether or not to throw the animal, and act accordingly. Clip the hair from the edges of the wound, lather and then shave thoroughly for about one inch around the wound. Direct your attendant to spray frequently. Be sure to have plenty of the bichlor. solution on hand and use freely; pick out with your forceps every particle of straw, hay, etc., etc., cut away all pieces of useless tissue, but be as conservative as possible. If your hands touch any object not impregnated with bichlor, wash them in the pail. Take a sponge and thoroughly cleanse the wound, having the spray going all the time. If a sponge falls on the ground, do not use it again unless thoroughly rinsed in the pail and the basin.

Whenever you are not using the instruments lay them in the carbolic solution. Now thread a needle with suitable catgut, and commence adaptation of parts, but not until the bleeding has entirely ceased. Lay the strands of swollen catgut in the wound to its depth, and take deep stitches, but do not tie until hemorrhage has ceased; if the tissues are wide apart, *aim* them at each other; good results frequently follow. Remember to keep the spray going; don't forget yourself and take hold of the tube, or if you do, wash your hands again in the bichlor. solution before touching the wound. I will suppose the wound is closed, your catgut drainage in position: powder the line of sutures with iodoform, and if there is much loss of tissue, dust it into the recesses of the wound. Now take your strips of protective oiled-silk, first cutting a hole in it to allow the drainage catgut to be pulled through, and lay it over the wound; open your towel, muss up the gauze, lay it lightly on the wound, then cotton and bandage lightly, but firmly. In order to keep the dressing in position, put on a plaster-of-paris bandage,

commencing just above the knee; tie a piece of rope through the bandages, and tie it around the neck, in order to help support the dressing. Feed the animal on soft food and keep him standing for a week or more.

There are three indications for removing the dressing, as follows: first, when secondary hemorrhage takes place; second, when the operation has not been done antiseptically, and third, when your curiosity becomes unendurable. In all these cases, the second dressing must be as minutely performed as the first. If, on the second day after the operation, the temperature reaches 104°, and stays there for a few hours, it would be well to remove the dressing and examine the wound, and if much inflammation be present, open treatment would be called for. The third cause is the most frequent, and it is almost impossible when first commencing this treatment, to let the dressing alone; it requires considerable *moral courage*, therefore this word of caution upon removing the dressing. At the end of three weeks, if the operation has been antiseptically performed, you will find that the gauze will be moist and discolored, about two tablespoonfuls of transparent gelatinous discharge will be found adhering to the silk, and the dressing will smell as sweet as new mown hay; no trace of catgut will be found, and the wound a picture of joy.

One last word, gentlemen, and I have done: If you carry out this system of surgery you will achieve some glorious results; you will think after many successes that all these details are not necessary, you will perhaps be careless, and failures will result. Don't forget that all the results you obtain, whether successful or otherwise, depend entirely upon the care and attention given to details.

A CALL TO DUTY.

By M. Bunker, D.V.S.

(A Paper read before the Massachusetts Veterinary Society.)

A number of years ago, when the study of veterinary science was in its very infancy in this country, in fact, I might almost say before it was born, a number of practitioners of this

State, of New York and of Pennsylvania, realizing that in co-operation and union there is strength, banded together and formed a society which is in existence to-day, known as the United States Veterinary Medical Association. To this Society the members were very loyal and its meetings were regularly attended, being generally held alternately in Boston and New York.

Its members comprised graduates and non-graduates. Among the latter were many men whom any school might well be proud to claim as alumni—workers and students they were without a doubt, as can be testified to by many of our own members.

There seems to have been one purpose which from the outset pervaded these men, and for the accomplishment and advancement of which they seem ever to have worked with an enthusiasm and interest which knew no such word as fail; they kept ever at work, their motto the advancement of the profession. To these men, many of whom have laid down their scalpel for the last time and gone to their reward, the young members of the profession owe a debt of gratitude and appreciation, for it is to such men as these that we find that opening and chance for the veterinary profession which is only of recent date. To this parent society the young men, as they took up their chosen profession, attached themselves, until at least it became a society with members all over the Union. Its influence has been good, its standing high, but it has not received the recognition which it should have received from the public.

As the years have passed since its inception, schools and colleges have been established, and have borne their fruit, until the graduate practitioner is abroad in the land.

Recognizing the fact that it is well for brothers to live together in peace and harmony, the graduate members of the profession in Massachusetts were invited to meet and form a State society. To this invitation there was a generous response, and as a result of that gathering the Massachusetts Veterinary Association was formed—its object, the advancement of the profession and the best interest of its members.

Its mission is a noble one, and one to which every member should be loyal in heart, faithful in service, and honest in service. There is for the veterinarian of to-day a field full of opportunities, full of chances for distinction, and last, but not least, a remuneration for his time, perhaps not always a princely sum, but yet one which will at least keep the wolf from the door. There may not always be stirring times for the investigator or specialist, but as "the still sow drinks the swill," so will the quiet but earnest worker earn the laurels when the time for action comes.

A little more than thirty years ago, a Massachusetts practitioner prior to sailing from England for home, purchased one or more text books to read and study during the voyage. One of these books had some wood engravings of the pathological appearances of various diseases, which were studied with much interest. Upon his arrival home, his practice was again taken up and the books for the time laid one side. He had not been many months at home before he was called to see a new form of disease which had broken out among our herds. On visiting the herd, a diagnosis, different from his most intimate friend's, was made, and which was disbelieved both by the veterinary profession and the human school, to say nothing of comments and criticism by the press and laity, in 1859, before the Legislature. In spite of all these sources of opposition and lack of support in his opinion, Dr. Thayer kept steadily at work until he had convinced the people of Massachusetts that they had indeed in their herds that scourge of the bovine race, contagious pleura pneumonia. Firm in his opinion, persistent and untiring in his work, he finally received from his brother practitioners support and co-operation. Then the human school and laity came over, and with them the legislative machine, and then the work of stamping out went on until there was not a case within the borders of the State. And all this had been done at a cost of about $65,000.

I have mentioned this case thus fully for no purpose of eulogium upon Dr. Thayer, for he needs none, his work stands ever in view of such, but simply as an example to present to this Society, to show them that whenever there comes a time

for similar earnest work there will be given to them that support and co-operation which is requisite for the completion of the work.

This Society has among its members many who are capable of just such work, and it should be the mission and the object of each and every member to aid in the prosecution of such efforts.

This Society was not founded with the idea of simply having a sort of monthly retreat where we can get together, swap cases, chat a while, and swap stories.

Its only efforts should be for the best interests of the profession, strike whom it may; it may strike you to-day, it may strike me to-morrow; but as time is the great leveller, so, in time, will the seeming hardships be evened up.

Truth, it is said, should not always be spoken. "Honesty is the best policy." It does not always seem to be, from a financial standpoint, for the time being, the best move, but step right ahead, and the satisfaction of knowing that your cause was right, and that at no future time can your course be laid bare and proclaimed dishonest, should be far more satisfactory than the few paltry dollars.

Harmony is a great thing, but there is a time when it is to be put aside and the opposite condition come in its stead.

This Society should lead all efforts to advance the course of veterinary medicine or the interests of the profession in this State; its voice should be heard with no uncertain sound when questions of health bearing upon our province are brought up, or are forced into prominence.

Now should always be the accepted time, no matter if it does strike in your neighborhood, perhaps disarrange some interest for whom you render service, temporarily. How much better to be able to say, "Yes, it did exist, but we got right to work and wiped it out," than to deny its existence or to claim that those who dare to come out are wild or crazy.

This Society must do its work, must do it more earnestly, and to do it thus our members must be aroused; and now, as our annual meeting is upon us, let us all go to work and have a grand rally from one end of the State to the other.

LYMPHATICS.

By Dr. B. F. King, Little Silver, N. J.

(A Paper read before the Veterinary Medical Association of New Jersey).

The lymphatics are comprised in an arrangement of vessels accompanying the venous system throughout the body, and are divided into two groups, consisting of the lymphatics proper and the lacteals. The latter are confined to the small intestines, while the former are found in all parts of the anatomy, excepting the brain, eyes, cartilages, tendons, the horns or nails, and the hair, and constitutes what is termed the absorbent system. The history of the discovery of this system of absorbent vessels dates from the vague allusions made by Hippocrates, Aristotle and others; to the description of the thoracic duct in the middle of the sixteenth century by Eustachius; and finally, to the discovery of the lacteals by Asellius, in 1622, and is more interesting in an anatomical than in a physiological point of view. Our knowledge of the anatomy of the absorbents dates from the discovery of the thoracic duct and of the lacteals, by Asellius, whose history of these vessels, as carriers of nutritive matter from the intestinal canal to the general system, was published in 1649. Pecquet discovered the receptacle for chyle, and demonstrated that the lacteals did not pass the liver, but emptied the chyle into the thoracic duct, by which it was finally conveyed to the venous system, in 1651.

The history of the absorbents was more fully completed by Rudbeck, who discovered a system of vessels carrying a colorless fluid through all parts of the body, and also demonstrated their identity with the lacteals. They were afterward studied carefully by Bartholinus, who gave them the name of lymphatics. The old idea, which dates from the discovery by Asellus and Pecquet, that the lacteals absorb all the products of digestion, was overthrown by Magendie and others, who experimented upon vascular absorption (one of the most difficult problems in anatomy) in order to determine the situation and origin of the lymphatics in different parts of the sys-

tem. The tenuity of the walls of these vessels, even in their course, and the presence of innumerable valves, renders it impossible to study them by the ordinary methods of injection. Yet it has been ascertained and positively proved by the injection of a solution (generally of mercury), gently diffused into the vessel of origin and following the vessels as the fluid follows their course, into the larger trunks, and thence to the lymphatic glands, and the regularity with which the minute vessels carry their burden through to the larger vessels the glands, proved that the lymphatics have been penetrated, and that the appearances observed are not the result of mere infiltration. The mode of origin of the finest vessels in the lymphatic radicles is exceedingly obscure, notwithstanding the numerous investigations which have been made within the last few years, particularly by the German anatomists. In fact, the lymphatics have not been actually injected and demonstrated in all the tissues of the body; yet because we have not been able to inject them we are not justified in assuming positively that they do not exist, for example, in the intestinal villi. According to Sappey, they have never been seen, although we have no doubt of their existence.

In the elaborate observations made by Dr Belaiff, of St. Petersburg, speaking of the origin of the lymphatics of the penis, the walls of the vessels were made apparent by the action of nitrate of silver in solution in pure water, and it is probable that they were very little distended, for the smallest of these vessels had a diameter of about one three-hundredths of an inch.

Robins and his associates have seen found a curious system of vessels which inhabit the brain and spinal cord, entirely surrounding the capillary blood vessels, and connected with the lymphatic trunk or reservoir, described by Fohman, under the piamater. These capillary vessels float in a fluid contained in cylindrical sheaths, which exceed them in diameter by from one twelve-hundredth to one four-hundredth of an inch, the investing vessels following the blood vessels in their ramifications and containing a clear fluid with bodies resembling the lymph corpuscles. When Robins first described

these vessels minutely, he did not state definitely their physiological relations, but he has since published a memoir in which he has described them as true lymphatic vessels, analagous to the lymphatics which partly surround the small vessels in fishes, reptiles, etc. In these animals the lymphatics in many parts nearly surround the blood vessels, to the walls of which the edges of their proper coat are adherent, and that portion of the wall of the blood vessels which is thus enclosed forms at the same time the walls of the lymphatics. This disposition of the lymphatics of the brain and spinal cord, as found by Robins, would allow of free interchange by endosmosis of the liquid portions of the blood and lymph.

The lymphatic glands are arranged in groups in different parts of the body, are oval in form and of a pinkish color, and vary in size, ranging from that of a pea to that of a walnut. Each gland is covered by a capsule, which by numerous prolongations forms a reticular framework. In the interior of the gland, as the lymphatic vessel enters it, the external coating becomes continuous with the capsule. They then divide into numerous minute branches, which after a twisting and winding course unite into two or more vessels, which, in leaving the gland, become again enveloped in their outer coat. In the interior of the glands the vessels are surrounded by granular cells and a plexus of capillary blood vessel. The lacteals derive their name from the milky appearance of the fluid which they convey. They are the mesenteric absorbents, and are supported between its layers. They take their origin from the small intestines, absorb the chyle which has been produced by digestion, and after passing through two or three absorbent glands, empty their contents into the receptacle. Chyle, as it is now known, is the fatty portions of food reduced to a very fine emulsion, and that these are the only principles that are taken up in large quantities, the facts which I have already quoted from these scientists are enough to establish.

If the abdomen of a living animal be opened during full digestion, then, and then only, will the lacteals and the thoracic duct be found distended with this fatty emulsion. These

vessels do not appear in the mesentery until the food has passed the orifice of the pancreatic duct. The observations of Sanders and Bonchardet remove all doubt as to the absorption of the product of the digestion of fatty matter by the lacteals, for these observers not only found that in dogs the proportion of fat in the chyle was increased with an increase of fat taken in their food, but that the particular kind of fat given to the dog was recognized in the chyle. We have also seen that a certain portion escapes the lacteals and is absorbed directly by the blood vessels, and it is an important question to determine at the present day whether the lacteals, in addition to their more prominent functions, are not concerned in the absorption of drinks, the albuminoids, the salines and the saccharine matter.

The functional effects of this system are very important and extremely active in the constitution at large, for we are certain that the various organs of the body are continually changing, either wholly or partially, their component parts, both for renovation and alteration, while it appears to be the office of the arteries to build up new parts and remove the waste of others, the old elements being removed by lymphatic absorption.

By this wonderful power the roots of the temporary teeth are absorbed, in order that their crowns may more easily give way; and in this manner the vascular cartilages are taken up by the absorbents to make room for the bony deposits. When the animal approaches maturity it is by the lymphatics that the dead parts are separated from the living, by sloughing and ulceration, and by their coagulated lymph and extravasated blood.

The most important of the functional offices of the lymphatics is the preservation of life under casualties. Long fasting is thus tolerated through their capability of displacing the animal oil or marrow from the bones, which, with the fat from the body, is employed to make up the want. Hibernating animals live during their torpidity by a slow absorption of adipose matter, the absorbents seeming to possess the power also of selecting the matter they take. The lacteals

employ themselves exclusively in the absorption of chyle, while the lymphatics also receive some matters and reject others. That absorption is not an act of mere capillary attraction is proved by the fact that besides the healthy and ordinate action of these vessels, they have also a morbid and inordinate action. If it were not so, their absorbent powers would ever remain unchanged, while, on the contrary, we find them continually changing. Sometimes they scarcely act at all, while again they are endowed with even too much energy. There is some difference of opinion among anatomists concerning the relative structure of the lymphatic glands, some regarding them as composed simply of a plexus of lymphatic vessels, held together by a delicate stroma of fibrous tissue, while others deny that there is any direct communication between the efferent and the affluent vessels, assuming that the vessels which penetrate the glands break up into small branches, which open into a parenchyma or gland with closed follicles, and that the fluids are collected from the gland by a second set of capillaries, connected with the efferent lymphatics. It is probable that the lymphatic and lacteal vessels have no direct connection with the blood vessels except by the two openings by which they discharge their contents into the venous system. But the absorbent system shows that they not only collect fluids from the intestinal canal during digestion, but from nearly every tissue or organ in the body, and that these fluids are received into the venous circulation.

THROMBOSIS OF THE ILIAC ARTERIES.

By Dr. J. Huilson, Jersey City, N. J.

(A Paper read before the Veterinary Medical Association of New Jersey).

Although I have nothing new to offer in my paper on this subject, a brief review may not be uninteresting, and I hope will lead to some discussion on the part of members. If there is nothing else in it, one good thing will be its brevity, and that, I know, will commend itself to you. We very seldom read or hear of cases of thrombosis, and it would appear from

this to be a very rare disease in actual practice. I personally have but little experience, and that only while at college, with a few cases in the live animal, but in the dead subject in the dissecting-room we find it different. I think while at college that about one out of every twenty of the plugs used for that purpose exhibited thrombosis, and that too in vessels in most instances of considerable size. One case I remember in the post aorta, near its origin, but the majority of them occurring in that vessel at its termination, or involving the iliac arteries. The museum of the college also contains many interesting examples of this disease. It seems to me, therefore, from its frequency in these dead subjects, that during life the trouble must frequently remain unrecognized, or probably be the cause of many obscure lamenesses or diseases. I should like to hear the views of members present, and their experiences as to the frequency of its occurrence in practice.

I will only briefly consider the pathology of thrombosis or embolism, as it might occur in any blood vessel, and then give the symptoms as exhibited, especially when affecting the post aorta or iliac arteries.

Regarding the pathology, I extract from Williams that a thrombosis is the coagulation of the blood in the vessels, be it arteries or veins. It may proceed from inflammation of vessels, caused by some injury, the result of this being an exudation from the walls of the vessels, forming the nucleus of the clot. The formation of the coagulum always begins at some definite, fixed spot, which is the source of local irritation, and from this it extends until the artery is plugged up to its origin from the parent trunk. Portions of this clot or thrombosis may often become detached from the walls or valves of the blood-vessel, and be impelled onward to other parts of the circulation, being then termed an embolism. Thrombi may be impelled from the heart to the arteries, or may form in the veins and travel to the heart; as long as the thrombosi is confined to a branch vessel, there is no particular danger. But the greater number of trombi in the small branches do not content themselves with advancing up to the level of the main branch, but new masses of coagulum deposit themselves

in the blood, upon the end of the thrombus, layer after layer. The thrombus is prolonged beyond the mouth of the branch into the trunk, in the direction of the current of the blood, and shoots out in the form of a thick cylinder, farther and farther, becoming continually larger and larger. It is these prolonged plugs that constitute the source of real danger, as the stream of blood may detach minute portions, hurry them away with it, and wedge them tightly into the nearest system of arteries or capillaries. Thus many cases of sudden death, that would be otherwise unexplainable, are accounted for.

Now regarding the symptoms. These in thrombi of internal blood-vessels, in many cases, would be impossible to recognize during life. We may have a suspicion of the trouble, but not sufficient to give a positive diagnosis. Perhaps externally, from the decreased amount of blood supplied to the part, we may detect more or less atrophy of the muscles supplied by such vessels. Thrombosis of the iliac arteries, the vessel supplying the circulation of the posterior extremities, may very plainly be recognized, both by symptoms plain to the sight, and by examination internally. I will endeavor to present these symptoms, as shown when affecting these vessels, in speaking of thrombosis. We understand, of course, that the blood-vessel is not entirely plugged by the clot, the blood being able to trickle in most cases between the coagulum and the coat of the vessel; and, again, if both sides are affected, the symptoms would be shown in both extremities.

The history of these cases will sum up about as follows: An animal, apparently sound in every respect, when driven for a short distance, develops symptoms of lameness, a weakness or slight paralysis behind, which will increase until unable to make further progress. During this time he will break out in profuse perspiration over his body, the leg is kept in constant motion, alternately raised and lowered, in a spasmodic manner. Respiration is hurried, pulse very weak, and seems in great pain. Another marked symptom, also, is on feeling the leg below the hock we find it to be of an icy coldness. If you continue to urge him he may fall down. After resting or lying a certain length of time, he will get up, and when

brought to the stable stands and rests, and the symptoms disappear; to reappear, however, upon the same exercise. As long as he is in the stable he shows no symptoms, but when the circulation of the blood is increased by exercise, the spasm or cramp of the muscles and irritation again develop. The lameness resembles—and when first seen might easily be mistaken for—spavin, walking on the toe, as in hock lameness. The disease may also, sometimes, with hasty diagnosis, be mistaken and treated for azoturia or colic; but with such a history,—a patient showing these symptoms every time he is driven or exercised, and recovering after rest; the profuse perspiration and cold extremity—the veterinarian will be led to suspect the real trouble, and the diagnosis can now be easily confirmed by an examination per rectum. Inserting this hand into this organ, searching for these large blood-vessels which will be found situated beneath about the last lumbar vertebra, we can feel the hard or cordy vessel, and the loss of pulsation or a fluttering sensation as of a small stream passing through a narrow space; the difference between that and the healthy artery will confirm our diagnosis.

TREATMENT.—There is nothing we know of that will avail in this trouble. Perhaps a mild case might be found where attempts may be made to cause absorption of the clot, assisting, perhaps, by medicinal agents, such as iodide of potassium, mercurials, or alkalies, or turning out to pasture, trusting to nature; but I have not yet heard of any successful treatment.

REPORTS OF CASES.

TUBULAR PREGNANCY, AND GASTRO-HYSTEROTOMY.

BY W. M. SIMPSON, D.V.S., Greenfield, Mass.

The patient was a twenty-two-months-old heifer, the property of Mr. George E. Lyons, which I was called to May 17th, 1890. On seeing the animal, at once concluded she was in labor full term, and found the os and part of the uterus pro-

truding per vulva. The os was firmly contracted, but on dilating, could easily feel the sides of the uterus, which was small and virgin-like. The organ was then replaced (uterus) but no signs of a fœtus discovered. The left hand was then introduced per vagina, and in feeling forwards, downwards and towards the right side, could detect the fœtal movements, which also could be seen on the right flank. After taking into consideration the facts here mentioned, extra uterine fœtation was diagnosed, but whether tubular or abdominal pregnancy was not distinguished until after operating, although Steele says that extra uterine fœtation in the cow was generally abdominal. The question of delivery was considered and "laparotomy" "gastro-hysterotomy," or "cæsarean section," was at once decided upon, although it was deemed best to wait until the next day, as better assistance and light could be obtained. Then, with the assistance of Dr. Zabriskie, (MD.) the operation was performed, to wit: The patient was gently cast and laid on the left side, and an ounce and a half of chloral administered; feet hobbled, except the right hind foot, which was held back by an assistant; the hair closely clipped from the flank, thoroughly washed with warm water and soap, afterwards sponged with a solution of 1–1000 of bichloride. An incision was then made in front of the anterior spinous process of the ilium, down and slightly forward, until the opening, which measured fourteen inches, was considered ample. Next the abdominal muscles and peritoneum. On incising the latter membrane the large dilated portion of the fallopian tube was easily found and drawn partly through the incision.

That part of the sack which seemed the least vascular was chosen, incised, and the offspring removed, the cord ligatured and severed. The placenta was then removed and the uterus pro tem was washed out with a weak solution of carbolic acid, and care taken to remove all the fluid, which was done with a sponge. The uterine walls were brought together and sutured with silk and powdered with iodoform. The peritoneum and muscles were treated separately, similar to the tube, with a good sprinkling of iodoform on each line

of incision. (In sewing up the abdominal muscles much help can be obtained by having the right hind leg brought well forward). The skin was then sutured and the flank again washed with a solution of bichloride. The patient was then allowed to rise and a wide bandage of bichloride gauze applied, over which a cotton bandage saturated with bichloride of mercury was placed, and, contrary to Prof. Fleming, the animal was allowed to lie down, ad libitum. The calf, a fine heifer, was named Cæsariena, and was soon taught to drink milk.

May 19th. Temperature, 102½°; pulse, 60; appetite and rumination good; feed consisting of bran twice a day and a fair allowance of hay; calf bright and playful.

May 20th. Temperature, 102⅕°; pulse, 66; good appetite; flow of milk increasing; calf doing well.

May 21st. Temperature, 103°; pulse, 66; bowels slightly constipated, but bright and eating well. Prescribed magnesium sulph oz., one pint water. Calf doing nicely.

May 22d. Temperature, 102⅕°; pulse, 56; eats and ruminates well. Examined the line of incision and found the skin had healed by first intention, with a slight swelling around the incision due to a slight inflammation in muscle tissue. Re-adjusted the bandages, first giving a good bathing with bichloride. Calf dead, having died during the night, from tympany.

This was a source of a great deal of regret. The only cause assigned was from the fact that it had been put to an old milk cow and the bowels did not get that purge which is generally necessary.

May 23d. Temperature, 102⅕°; pulse, 56; appetite good and giving six quarts of milk a day. Bowels moved and the patient as bright as though nothing had ever occurred to mar her happiness and from this out there was no signs of inflammation of any character. To-day she is again with calf and due in July. In the course of operating it was only necessary to ligature two small vessels, no doubt branches of the circumflex illii. And one physician said it was conspicuous for the small amount of blood. I have hunted up the

authorities in my possession and can find no account of tubular pregnancy in the cow.

A QUEER FREAK OF NATURE.

By A. E. Derwent, D.V.S., Waverly, Ia.

A short time ago I was called to operate on what the owner called a hermaphrodite for the purpose of removing the testicles. The animal was five years old, a well bred animal from running stock.

The mammæ were well developed, having two well-formed mammilla instead of the scrotal sack, which contained two well-formed testicles, which could only be felt by manipulation.

The penis was well-developed and of natural size and was situated in the line of perinæum about five inches below the anus, the urine being voided through its natural course, there being no vulva developed. I make a report of this case, having never seen a similar report in the Review.

EXTRACTS FROM FOREIGN JOURNALS.

DOES CASTRATION OF FEMALE DOMESTIC ANIMALS PREVENT THE RETURN OF RUTTING?

By Mr Barthelemy.

Thirty-eight young sows, ranging in age from forty-five to sixty days, which had been operated on by a professional castrater, subsequently become in heat monthly in the same manner as if they had not been subjected to the operation, and a law suit resulted between the owner and the operator, the former claiming that the operation had not been skillfully performed, and the latter affirming that both of the ovaries had been removed in the case of each of the animals. By order of the Court, five of the pigs were killed, and a post-mortem examination made by two veterinarians, who reported that the ovaries, the oviducts and the greatest part of the uterine horns were absent in all the five cadavers.

The problem was thus evidently solved, and the fact established that female swine may become in heat after the re-

moval of the ovaries. The question whether this is good law for other animals remains for physiologists to amuse themselves withal.

The same author reports a case in which he performed double ovariotomy in a nymphomaniac mare, which, notwithstanding, had frequent subsequent periodical returns of heat.

LACERATIONS OF THE FIRST THREE TRACHEAL CARTILAGINOUS RINGS MISTAKEN FOR AN ATTACK OF PHARYNGO-LARYNGITIS.

By Mr. Bru.

In this case a mule hitched to a cart fell down and was severely wounded in the upper part of the neck in consequence of the breaking of one of the shafts of the vehicle. The man, ner in which the injury occurred was only known after the fatal termination of the case became imminent, the facts not being reported until the subsequent development of the symptoms, when the patient became seriously sick. When first seen there was tumefaction of the right parotid region, and the food returned with the discharge from the nostrils and was coughed through the mouth whenever he was fed with the hay or bran mashes which constituted his fodder. The general appearance of the patient was good, and there was no disturbance either of the respiration or circulation. A local embrocation was applied to the parotid swelling, and the animal was placed under observation. Three days later there was an appearance of fluctuation in the parotid, which, upon being punctured, discharged, instead of pus, a small amount of blood mixed with a few bubbles of air, and this condition continued until the death of the animal, which occurred seven days after the injury. At the post-mortem the first ring of the trachea was found to be fractured in its entire extent, and the third and fourth cartilages were separated, the fibrous tissue which unites them having been torn by the blunt end of the shaft of the cart. The tracheal mucous membrane was slightly congested.—*Revue Veterinaire.*

NUX VOMICA AND STRYCHNIA IN THE TREATMENT OF PURPURA.

By Mr. Roude.

This is the record of three cases of purpura successfully treated by the administration of these nervous stimulants. In the first case an animal which presented the characteristic swellings of the legs and abdomen, with petechial spots over the mucous membranes, was treated with four grammes (one drachm) of the powdered nux (given in wine), and after three days was completely relieved.

In the second, the same symptoms existed, but in a severer aspect, besides which the head was so enormously swollen as to render the prehension of food impossible. Puncture with the actual cautery were performed and nux vomica prescribed, and in a few days the animal made a good recovery.

In the third case the symptoms were still more marked, and the same form of treatment seemed to produce no effect on the patient. The head continued to swell, and the respiration was effected to an extent which seemed to threaten suffocation. To prevent this tracheotomy was resorted to, and the treatment changed to the hypodermic injection of a solution of sulphate of strychnia. This treatment, which was continued for forty hours, was followed by a rapid improvement, and though the case became complicated by local gangrenous swelling and of the sloughing of the wound of the trachea, the animal was in a short time able to resume his work.—*Ibid.*

[This form of treatment of purpura is one which is in common practice with American veterinarians, Dr. J. Hopkins, of Newark, N. J., having been one of the first to put it into use. —Ed.]

SUDDEN TEARING OF THE LATERAL LIGAMENTS OF THE HIND FETLOCK JOINT.

By Mr. L. Magnin.

A half-thoroughbred mare was found one morning in her stall, making violent efforts to rise, during which the right hind fetlock showed an abnormal movement of flexion. Succeeding at length in getting upon her feet, the hind fetlocks

were found to be affected with well marked œdematous swellings, the outside of both joints being the parts involved. When made to move, the act was performed with difficulty, the fetlocks appearing to be anchylosed, and the digital regions being turned inwards. Manipulation of the parts showed a change in the relations of the bones, the phalanges being so turned inwards as to form an angle with the cannon bone, the opening being towards the median line, the displacement of the articular surfaces being accompanied with a well-marked crepitant sound. Notwithstanding a severe blister over the outside of the joints, the patient grew worse, until, in consequence of her efforts in getting up, the skin became ulcerated and torn, until the lower extremities of the metatarsal bones protruded, and the digital region was bent more and more inwards, until it rested on the entire length of its external surface. The animal was destroyed, and at the post-mortem it was discovered that the left joint, besides the rupture of both lateral ligaments, had become the seat of extensive lesions of acute arthritis. The same conditions were present on the right side, but the lesions were less extensive. *Rec. de Med. Vet.*

[We remember another case, in an animal in which a lesion of the same nature was present, with a corresponding diagnosis, in connection with a severe lameness of the near hind leg. The animal was kept under treatment for a very long time, with a resort to slings, splints, blisters, etc., which all failed to produce any beneficial effects, the destruction of the animal becoming finally necessary.—ED.]

TRANSMISSION OF TUBERCULOSIS FROM MOTHER TO FŒTUS.

BY PROF. CSOKOR.

A preparation was exhibited by the author before the Medical Society of Vienna, of an anatomical and microscopic preparation, showing, without doubt, the transmission of tuberculosis from mother to fœtus. The case was that of a pregnant cow, suffering with pulmonary tuberculosis, and having well-marked pleural, pericardial and peritoneal com-

plications. The fœtus, which was well developed, showed evidence of deep anemia. In the hepato-duodenal ligaments there were six lymphatic glands, largely tumefied, the section of which showed caseous and calcareous focci; and surrounding the glands, the superficial lymphatic vessels were the seat of numerous tubercles of the same nature, containing epithelioid and round giant cells, with numerous bacilli. This fact proves that the morphological elements of tubercles (epithelioid, round, and giant cells), do exist in a tuberculous mother, and that a regressive metamorphosis, (caseous and calcareous degeneration), can also take place. The infection was probably transmitted through the portal vein, as only the glands of the hepato-duodenal ligaments were affected.—*Semaine Medicale.*

SOCIETY MEETINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The seventh annual meeting of the Veterinary Medical Association of New Jersey was held at the State Street House, Trenton, on Thursday, April 9th, 1891.

The meeting was called to order by President Dr. J. W. Hawk, of Newark. The Secretary called the roll, and following members were present: Drs. J. W. Hawk, Newark; H. Bradshaw, Trenton; A. Brown, Winsor; S. S. Cole, Millville; J. C. Dustan, Morristown; J. Hurley, Hopewell; B. F. King, Little Silver; S. Lockwood, Woodbridge; W. H. Rowland, Newark; W. Runge, Newark; J. Huilson, Jersey City; R. O. Hasbrouck, Passaic; W. W. Curry, Jersey City; J. Gerth, Jr., Newark; T. DeClyne, New Durham; J. M. Everitt, Hacketstown; M. M. Stage, Dover; A. W. Axford, Naughright; and W. H. Cooper, Trenton.

The minutes of the last regular meeting were read by the Secretary, and approved; also minutes of the special meeting were read and approved.

President Hawk's address was both interesting and instructive. The synopsis of address being the legislative bill and registration, absence of contagious disease in the State, there not being a case of pleuro pneumonia within its borders, trouble among horses at the present time, the work of the Bureau of Animal Industry, giving the history of the work done in New Jersey for the last nineteen months, the number killed and the cost of the same, the great work done and being done by the United States Bureau of Animal Industry, and some sound advice to the Association for its future welfare.

There being no unfinished business, Secretary Cooper read his yearly report, which was accepted and placed on minutes.

Treasurer King read his yearly report; also accepted and placed on minutes.

The Chair appointed Dr. Brown to fill vacancy in Board of Trustees. Chair declared an intermission for the Board of Censors and Trustees to make their report.

President called meeting to order.

Dr. Dustan, chairman *pro tem.*, made a report on legislative bill, also on constitution and by-laws, and advised the Association to prosecute unregistered veterinarians. It was moved report be received, which was seconded and carried.

Dr. Huilson read a paper on "Thrombosis of the Iliac Arteries;" followed by Dr. King with a paper on "Lymphatics."*

Discussion of these papers was very animated, Drs. Hawk, King, Dustan, Runge and others taking part.

Dr. E. Britton, Long Branch, N. J., was proposed for membership. Laid over according to by-laws, until next meeting.

Election of officers for the ensuing year resulted as follows: President, Dr. R. R. Letts, Hoboken; First Vice-President, Dr. J. C. Dustan, Morristown; Second Vice-President, Dr. W. Runge, Newark; Secretary, Dr. W. H. Cooper, Trenton; Treasurer, Dr. B. F. King, Little Silver.

Board of Censors: Dr. J. W. Hawk, Chairman; Dr. W. B. E. Miller, Camden; Dr. J. Huilson, Jersey City; Dr. A. Brown, Winsor; Dr. W. W. Curry, Jersey City.

Chair appointed Dr. Dustan to escort the newly elected President to the Chair; Dr. Hawk welcomed Dr. Letts to the Chair with a short address.

Dr. R. R. Letts, on taking the Chair, made a short address, in which he spoke very feelingly of the honor bestowed upon him, and thanked the members for this mark of their esteem of him—one of their youngest members—in electing him to be their President. He hoped that he would be able to leave the Chair with honor, and that others may say of him, as he now says to the one who has just vacated the highest office of this Association, "well done, good and faithful servant."

President Letts appointed Dr. Hawk to escort the other newly elected officers and introduce them to the Association, which ceremony each gentleman thus honored acknowledged in a short address.

Moved and seconded to proceed to business. Carried. After considerable business had been gone through, the Association adjourned for the banquet, which was very fine, and enjoyed by all.

After the banquet the meeting was again called to order, and John C. Pitney, of Newark, was elected the Counselor of the Association.

The President appointed the following as delegates to the different Associations: United States Veterinary Medical Association, J. C. Dustan and W. W. Curry; New York Veterinary Medical Association, T. DeClyne and A. Axford; Pennsylvania Veterinary Medical Association, J. Huilson and W. B. E. Miller; Maryland Veterinary Medical Association, W. Runge and J. Gerth, Jr.

Eessayist for next meeting, Dr. W. W. Curry.

Adjourned to meet at Newark on the second Thursday in August, 1891.

W. H. COOPER,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

The annual meeting of the Massachusetts Veterinary Association was held at Young's Hotel, Boston, Wednesday evening, April 22d, 1891.

Presiding officer—President Thomas Blackwood.

Minutes of last meeting read and accepted.

Annual reports of the Secretary and Treasurer read and accepted.

The Secretary was instructed to continue to subscribe for the *Veterinary Journal.*

Motion made by Dr. Saunders, and seconded by Dr. Hitchings, that the chair appoint a nominating committee to report a list of officers for the ensuing year. Carried.

The following nominating committee was then appointed: Drs. Winchester, Saunders, and Hitchings. It reported the following names: for President, L. H. Howard, D.V.S; for Vice-President, W. H. Hitchings, D.V.S; for Second Vice-President, W. A. Sherman, D.V.S., M.D.; for Secretary and Treasurer, Austin Peters, M.R.C.V.S.; for Executive Committee, A. Marshall,

*Both are published in this issue of the REVIEW.

M.R.C.V.S.. C. E. Hadcock, M.D.V.. E. C. Beckett, M.D.V., Charles Winslow, D.V.S. and George Penniman, D.V.S.

Moved by Dr. Winchester and seconded by Dr. Saunders, that the Secretary cast one ballot for the list of names reported by the nominating committee. Carried.

The Secretary then cast one ballot in the affirmative, and the above list of officers was declared duly elected.

The new President, Dr. L. H. Howard, then took the chair.

Moved by Dr. Hitchings, seconded by Dr. Saunders, that the retiring officers be given a vote of thanks for their services during the past year. Carried unanimously.

The meeting then adjourned to the annual dinner.

AUSTIN PETERS,
Secretary.

VETERINARY ITEMS.

COMPLIMENTARY DINNER TO PROF. R. S. HUIDEKOPER.

In recognition of the valuable aid and unselfish efforts for the good of the profession in Philadelphia and vicinity, rendered by Prof. R. S. Huidekoper, there was gathered together at the Colonnade Hotel, Friday evening, April 17th, the most representative body of veterinarians ever assembled in Philadelphia, to tender him a farewell dinner and a God speed in his new field of labor, the city of New York.

Around a beautifully arranged table, flanked on all sides with green plants, forty covers were laid, to each of which was attached a unique menu card and a gilded old horseshoe with name cards, a souvenir of the occasion.

The head of the table was presided over by Dr. W. Horace Hoskins, on whose left was seated Prof. R. S. Huidekoper, and with the following well known veterinarians to do him honor: Drs. Jno. W. Gadsden, Francis Bridge, Henri Formad, John Marshall, W, H. Ridge, H. B. Felton, J. C. Walker, G. R. Hartman, C. H. Magill, Jas. B. Rayner, W. S. Kooker, M. W. Drake, H. P. Eves, S. J. J. Harger, L. O. Lusson, F. H. Mackie, Rob't. Gladfelter, Geo. B. Rayner, Frank Stauden, W. B. Montgomery, W. B. Wemtz, Chas. Schaufler, Chas. E. Goentner, Thos. B. Rayner, W. B. E. Miller, Alex. Glass, Robert Formad, and Mr. Wheeler of the class of 1891, of the Veterinary Department of University of Pennsylvania. The press was represented by Mr. Wanamaker, of the *Philadel-*

phia Ledger. Letters of regret were received from Drs. Isaiah Michener, Jas. J. Ross, Jno. R. Hart, A. F. Schrieber, and Wm. A. Birch.

After a most palatable feast, including planked Delaware shad, all of which was enjoyed in pleasant conversation by this remarkably congenial gathering, the time arrived when the chairman drew the attention of the guests to the toast list. Dr. W. Horace Hoskins, responding to the toast of "Our Guest," briefly reviewed the career of Prof. Huidekoper among us, touching rapidly upon the many ways he had aided and encouraged the growth of the profession, meting to him the just recognition he so well deserved, and wishing him on behalf of the entire profession, success, health, and happiness in his new field of labor.

In response, Prof. Huidekoper thanked very warmly the members of the profession for the cordial wishes and the unexpected recognition they accorded him, and feelingly referred to the large number who honored him in their presence around the table. Touching quickly his humble efforts in our midst, he felt that he could say something to each one personally did time allow, for in some way or another they had all contributed to his work and pleasure in Philadelphia.

"The Profession" was most heartily responded to by Dr. Jno. W. Gadsden, who, tracing the wonderful strides made by veterinary science, paid a glowing tribute to the valuable part Prof. Huidekoper had contributed in the work done.

The "Pennsylvania State Veterinary Medical Association" was fittingly responded to by one of its organizers, Dr. W. S. Kooker, who, after tracing its history from infancy and the work it had accomplished, pointedly referred to the zealous, prompt, and efficient part taken by our guest. He held him aloft as a fitting example of a worthy member, that all might emulate.

The "Keystone Veterinary Medical Association," was held aloft as one of the foremost associations in the land, by Dr. Chas. T. Goentner. Leading or at the front in all movements for the general good of the profession, he said no little part of its success was due to Prof. Huidekoper, who had always shown

the keenest interest in its success, and accorded it a strong helping hand at all times.

"Our Preceptor," was very feelingly responded to by Dr. W. H. Ridge, a former student under Prof. Huidekoper. Outlining the broad course of study he had planned for them as students, and the great appreciation of the same that they felt, he closed his remarks with the sincerest wishes for him, and the keenest regret at his loss.

"Our Sanitary Friends," a toast allotted to State Veterinarian Bridge, who was imperatively called away, fittingly fell to the lot of Prof. Henri Formad, who in his jocular way referred to Prof. Huidekoper as a magnificent specimen of bacteria. Alluding to his great sacrifices of a personal and purely unselfish character for the profession, and how few such men we found, he most earnestly touched upon his work in the Veterinary Department of the University of Pennsylvania, and rendered to him the just tribute, that it would have never existed to-day had it not been for his zeal and labors. Deploring the causes that led to his departure to another field, he could not feel that we had lost him, but that through the many channels of his labors, we would still feel his work in our midst.

"Our Neighbors," was responded to by Dr. W. B. E. Miller, of New Jersey, who in the sincerest manner, voiced for his people the keen loss they felt, assured him that from no source would there follow him in his new field more sincere wishes for his success and well being than from his admiring friends in New Jersey.

"Our Daily Bread," was most fittingly assigned to Dr. Alex. Glass, who, after explaining the troubled efforts to unsuccessfully retard the progress of the fleeting dollars, said he honored Prof. Huidekoper for his success in raising the dignity of the profession to a higher standard in Philadelphia, and with it brought a better rate of compensation for professional services than had been accorded the profession before he entered it. Referring to the many personal kindnesses he had received at his hands, he assured him that only the best wishes of the entire profession would follow him.

Calling upon Dr. John Marshall, Dean of the Veterinary

Department of the University of Pennsylvania, Prof. Huidekoper was the recipient of warm words of appreciation for his work in that institution. After referring to the high standard he had established, the zealous work he had contributed for its success, he pictured the requirements for the building of a structure to be essentially brick and mortar, and in his present position as Prof. Huidekoper's successor felt that to the latter he conceded the part of representing the bricks, while he assumed that of the mortar. With a rising movement all turned to our guest, to fittingly close this pleasant occasion by drinking to his health and success a closing toast. N. N. S.

MINNESOTA VETERINARIANS ALIVE.

The failure of two bills regarding the practice of veterinary medicine and a contagious disease act, in the Legislature of the State of Minnesota two years ago, has awakened a stronger interest in these matters at the present session of the State Legislature. On December 26th, 1890, a general meeting of all veterinarians practicing in the State convened at the Astoria Hotel, St. Paul, Minnesota, and considered the outlines to be followed towards securing these or similar bills during the present session. After the reading of several bills and a lengthy debate, a committee of nine was elected, to be known as the Executive and Legislative Committee, with power to act. The following gentlemen compose the committee:

Prof. O. Schwartzkopff, Chairman, St. Anthony Park; J. Hinmann, Secretary, St. Paul; R. Price, Treasurer, St. Paul; C. C. Lyford, Minneapolis; E. Rowell, Minneapolis; Wm. Dickson, Lithfield; A. L. Button, St. Paul; C. H. Parker, Minneapolis; A. Scott, Owatonna.

The committee has been in session at several times, and has drafted a bill, which is introduced into the State Legislature with the best possible chance of success.

As soon as this bill has been passed the committee will consider the presentation of a contagious disease act, and also an act to incorporate the State Veterinary Medical Association.

CORRESPONDENCE.

SPAYING IN SMALL FEMALES.

Editor American Veterinary Review:

DEAR SIR:—I have read a paper in the REVIEW of Nov. 18th, 1890, written over the name of T. B. Rogers, D.V.S., which has caused me a good deal of anxiety to know how long and how extensively he has practiced "spaying," under the methods he mentions, for what he designates the enlightenment of the younger members of the profession.

I am a graduate and practitioner of comparative medicine, and am proud to think myself among a class of scientific men whose motto is, (or should be), amelioration in every practicable manner of the sufferings of our lower animals (and earth-born companions).

I firmly believe that scientific and consequently successful practice of veterinary medicine and surgery can come from such men alone as build their methods and practice upon a sound education and moral which has for its corner-stone, humanity.

In the reading of this article written by Mr. Rogers, I find proof added to proof, strengthening my conviction.

In the name of veterinary science and such convictions I am, I think, justified in asking Mr. Rogers to answer satisfactorily (to the junior members at least) the following questions regarding his operations:

1st. Why in the name of modern science does he not make painful and delicate operations in such animals under the influence of anæsthetics, as is being almost universally practiced by every practitioner worthy the name?

2nd. Why should sections of the uterus be removed and in several ways increase the gravity of the situation to no practical purpose if the operation of ovariotomy be skillfully performed?

3rd. Was the bladder not opened by accident rather than mistake, owing to struggling from pain, and why was the organ not relieved by the catheter previously?

4th. Why should we fear the breaking off of a resistant

body, as the uterine horn, even in a delicate patient, if the operation be scientifically performed under anæsthetics?

5th. Why should such extreme care be observed that the parietal wound be wholly within the linea alba, where it is well known fibrous tissue predominates and where healing by first intention is a result seldom gratifying the operator?

I quite agree with the writer that nothing enhances the surgeon's reputation as do skillfully performed operations, but doubtless, like many others, think the infrequency of this operation in the hands of practitioners due less, very much less, to their not being competent to skillfully perform the operation, than to good reasons (deep reasons), one of the least of which is, it is an operation which may and has been greatly abused by being indiscriminately practiced.

I fear unless our friend can and will place scientific answers opposite these questions submitted, his "star" as a scientific surgeon in this age may have set.

FRANK H. MILLER, VS.

REGULARS AND IRREGULARS.

Editor Review:

Inclosed I hand you three dollars for the renewal of my subscription to the REVIEW, which I find to be indispensable, although so many of its writers are clamoring for a law to throttle all irregular practitioners.

The great solicitude of these men for the protection of the poor, simple-minded public would be pathetic, as well as sympathetic, could we eliminate from it a vague suspicion that this solicitude is not unmixed with a faint desire for self-protection from these same irregulars, many of whom acquired their knowledge in the school of practice before the veterinary colleges had existence.

It is a terrible thing on the public for these irregulars to tend and cure their neighbors' sick animals; but we hear no denunciations of the regulars who are going about delivering street lectures and selling quack remedies, the formulas of which are kept secret.

To stop this species of writing and law making, would it

not be a good idea to lay a heavy tax upon the irregulars, and turn the proceeds into a pension fund for these regulars who can get no business and who are crying aloud for protection? I for one would gladly pay my share of the tax.

The practice of medicine may be a science, but if so, some of the most famous practitioners have not found it out. Dr. Davis, of Rush Medical College, calls it an "incomplete science." Yes, rather incomplete, as illustrated by President Garfield's case, familiar to the world.

At the time this celebrated case was before the public, a "moonshiner" in North Carolina was shot so full of holes that his hide would hardly hold ear corn. He was thrown into jail and tended by an obscure mountain surgeon. In ninety days he was well enough to stand trial and be sentenced to the penitentiary for violating the United States revenue laws.

Under the skilful manipulations of the graduates who are at the top of the medical science hill, a public man when stricken by disease is as certain to need an undertaker as light is to appear with the rising sun.

In the horse world a horse suspected of glanders is doomed to death if a regular is called in. They cure the disease by killing the victim: that is, cut off the toe to get rid of the corn, and this is "scientific medication." Mark, I say if only suspected; for the symptoms of glanders are found in so many other diseases, that the college-bred is afraid to diagnose the case, and so orders the animal's death, the grave being a good hiding-place for incompetency.

All we ask is freedom and a fair field, and a discerning public will soon give to each man his true place according to his ability.

V. G. HUNT.

A CORRECTION.

ODEBOLT, IOWA, Feb. 17th, 1891.

Editor Review:

In my article on "Corn Stalk Disease," in the February number of the REVIEW, on page 669, in second paragraph, which reads as follows: "and what a large majority . . ., and as a result have advocated and treated according to the old dry American theory," the word *American* should read *murrain.*

Would you please note the error in one of your next issues?

Inclosed is a report of two cases that I would like to present to the profession, if you deem them worthy of publication.

Very respectfully yours, G. A. JOHNSON.